

Exhibit 6

CHARLES E. MULLINS, M.D.
3/6/2013

Page 2		Page 4	
1	A P P E A R A N C E S	1	EXHIBITS/cont.
2		2	NO. DESCRIPTION PAGE
3	FOR THE PLAINTIFF:	2	Exhibit 307 262
4	Mr. R.J. Zayed	3	Diagram
5	CARLSON, CASPERS, VANDENBURGH, LINDQUIST &	4	Exhibit 308 269
6	SCHUMAN, P.A.	5	Patent
7	225 South Sixth Street, Suite 4200	6	Exhibit 309 269
8	Minneapolis, Minnesota 55402	7	Diagram
9	612.436.9643	8	Exhibit 310 282
10	rzayed@carlsoncaspers.com	9	Patent
11		10	Exhibit 311 282
12	FOR THE DEFENDANT:	11	Diagram
13	Ms. Nina Y. Wang	12	Exhibit 312 288
14	Mr. Andrew McCoy	13	Patent
15	FAEGRE BAKER DANIELS	14	Exhibit 313 301
16	3200 Wells Fargo Center	15	Diagram
17	1700 Lincoln	16	Exhibit 314 301
18	Denver, Colorado 80203	17	Patent
19	303.607.3500	18	Exhibit 315 307
20	nina.wang@FaegreBD.com	19	Patent
21	andrew.mccoy@FaegreBD.com	20	Exhibit 316 307
22		21	Article
23	ALSO PRESENT:	22	
24	Ms. Celia Rutledge, Videographer	23	
25		24	
		25	
Page 3		Page 5	
1	I N D E X	1	P R O C E E D I N G S
2	Appearances PAGE 2	2	* * *
3	Stipulations 1	3	THE VIDEOGRAPHER: We're going on the
4	CHARLES E. MULLINS, M.D.	4	record. Today's date is March 6th, 2013. The time
5	Examination by MS. WANG 6	5	is 8:35.
6	Signature and Changes 322	6	
7	Reporter's Certificate 324	7	This marks the beginning of Videotape
8		8	No. 1 in the deposition of Dr. Charles E. Mullins, in
9	EXHIBITS	9	the case of the AGA Medical Corp. versus W.L. Gore &
10	NO. DESCRIPTION PAGE	10	Associates, Inc., Case No. 0:10-CV-03734-JNE-JSM,
11	Exhibit 288 6	11	United States District Court, District of Minnesota.
12	Notice	12	The deposition is taking place at 1301
13	Exhibit 289 21	13	McKinney, Suite 5100, Houston, Texas. The
14	Report	14	videographer is Celia Rutledge for Merrill Legal
15	Exhibit 290 72	15	Solutions, 315 Capitol, Suite 210, Houston, Texas.
16	Book Excerpt	16	Would all present counsel please
17	Exhibit 291 109	17	identify yourself and state whom you represent.
18	Book Excerpt	18	MR. ZAYED: Good morning. R.J. Zayed
19	Exhibit 292 118	19	for AGA Medical Corporation.
20	Report	20	MR. WANG: Good morning. Nina Wang
21	Exhibit 293 123	21	and Andrew McCoy of the law firm of Faegre Baker
22	Report	22	Daniels, on behalf of Defendant, W.L. Gore &
23	Exhibit 294 137	23	Associates.
24	Diagram	24	The court reporter today is Amy
25	Exhibit 295 138	25	Prigmore of Merrill Legal Solutions.
	Patent		And would you please swear in the
	Exhibit 296 144		
	Diagram		
	Exhibit 297 168		
	Diagram		
	Exhibit 298 227		
	Photograph		
	Exhibit 299 228		
	Photograph		
	Exhibit 300 229		
	Article		
	Exhibit 301 232		
	Patent		
	Exhibit 302 232		
	Diagram		
	Exhibit 303 243		
	Patent		
	Exhibit 304 243		
	Diagram		
	Exhibit 305 262		
	Patent		
	Exhibit 306 262		
	Diagram		

2 (Pages 2 to 5)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 6</p> <p>1 witness.</p> <p>2 CHARLES E. MULLINS, M.D.,</p> <p>3 having been first duly sworn, testified as follows:</p> <p>4 EXAMINATION</p> <p>5 BY MS. WANG:</p> <p>6 Q. Good morning, Dr. Mullins. My name is Nina</p> <p>7 Wang and I'm the attorney for the Defendant, W.L.</p> <p>8 Gore. Thank you for spending your day with us.</p> <p>9 I'm going to hand you what's being marked as</p> <p>10 Exhibit 288 for the record.</p> <p>11 (Exhibit 288 is marked.)</p> <p>12 Q. (BY MS. WANG) And just to start off, can you</p> <p>13 state your full name for the record and spell your</p> <p>14 last name, please.</p> <p>15 A. Charles E. Mullins, M-u-l-l-i-n-s.</p> <p>16 Q. And Dr. Mullins, do you have a business or a</p> <p>17 home address?</p> <p>18 A. Home address. Home, business, both now.</p> <p>19 Q. Okay. What address is that?</p> <p>20 A. 13714 Cottrell Court, C-o-t-t-r-e-l-l, Court,</p> <p>21 Houston, 77077.</p> <p>22 Q. And is there any reason to believe that</p> <p>23 you'll be moving from that address anytime soon?</p> <p>24 A. Death, probably.</p> <p>25 Q. Hopefully that won't happen.</p>	<p style="text-align: right;">Page 8</p> <p>1 wait until he finishes his objection to answer so</p> <p>2 that we have a clear record, that would be great.</p> <p>3 A. All right.</p> <p>4 Q. Do you understand that?</p> <p>5 Now, to the extent that your counsel does</p> <p>6 object, you are still compelled to answer the</p> <p>7 question unless he instructs you not to answer.</p> <p>8 Do you understand that?</p> <p>9 A. I understand.</p> <p>10 Q. Each time you've had your deposition taken</p> <p>11 before, you've given truthful and accurate testimony;</p> <p>12 is that correct?</p> <p>13 A. That's correct.</p> <p>14 Q. And is there anything about your condition</p> <p>15 today that would prohibit you from giving truthful</p> <p>16 testimony?</p> <p>17 A. I don't quite understand. But, no.</p> <p>18 Q. Okay. Well, that brings up something. If</p> <p>19 you don't --</p> <p>20 A. Yes.</p> <p>21 Q. -- understand the question, please feel free</p> <p>22 to ask me. If you answer the question, I'll assume</p> <p>23 that you understood it. So, if you have a question,</p> <p>24 please ask for clarification.</p> <p>25 So, is there anything about your condition</p>
<p style="text-align: right;">Page 7</p> <p>1 Dr. Mullins, have you had your deposition</p> <p>2 taken before?</p> <p>3 A. Yes.</p> <p>4 Q. And how many times have you had your</p> <p>5 deposition taken before?</p> <p>6 A. I'm not sure. It's four or five, I think,</p> <p>7 something like that.</p> <p>8 Q. And what kind of matters have you had your</p> <p>9 deposition taken in?</p> <p>10 A. Most recently, the patent cases, AGA, in</p> <p>11 defense of AGA. And before that, a couple of</p> <p>12 malpractice cases.</p> <p>13 Q. So, you're probably old hat at this now, but</p> <p>14 I'm going to give you some basic ground rules --</p> <p>15 A. Okay.</p> <p>16 Q. -- for the deposition today.</p> <p>17 You're doing a great job. The court reporter</p> <p>18 here today is to take down all the words both of us</p> <p>19 say. So, if you could endeavor to wait until I</p> <p>20 finish asking the question to answer, that would be</p> <p>21 great.</p> <p>22 Do you understand that?</p> <p>23 A. Yes.</p> <p>24 Q. And your counsel will probably be making some</p> <p>25 objections during the transcript. And if you could</p>	<p style="text-align: right;">Page 9</p> <p>1 today, like you're taking medicine or you have a cold</p> <p>2 or any kind of condition, that would prohibit you</p> <p>3 from giving accurate testimony?</p> <p>4 A. No.</p> <p>5 Q. And you understand you're here under oath</p> <p>6 today?</p> <p>7 A. Yes.</p> <p>8 Q. And it's just like we're in a courtroom, even</p> <p>9 though the Judge isn't before you. You understand</p> <p>10 that you're giving testimony today under the penalty</p> <p>11 of perjury?</p> <p>12 A. Yes.</p> <p>13 Q. Now, just taking a quick look at what's been</p> <p>14 marked Exhibit 288, I think that's the notice of your</p> <p>15 deposition.</p> <p>16 Are you appearing here today pursuant to the</p> <p>17 notice of deposition?</p> <p>18 A. Yes.</p> <p>19 Q. Dr. Mullins, what did you do in preparation</p> <p>20 for your deposition today?</p> <p>21 A. I reviewed the documents from Gore. I guess</p> <p>22 they were arguments in favor of their -- their case.</p> <p>23 Also reviewed many, many patents, some of which I've</p> <p>24 never heard of.</p> <p>25 Q. Okay.</p>

3 (Pages 6 to 9)

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3/6/2013

<p style="text-align: right;">Page 10</p> <p>1 A. And I met with the attorneys for AGA to give 2 me some counseling on the legalese. 3 Q. Sure. 4 When did you meet with the attorneys for AGA 5 in preparation for your deposition? 6 A. Most recently, yesterday. 7 Q. And had you met with them prior to that? 8 A. Yes. 9 Q. And how many times have you met with the 10 attorneys for AGA in preparation of your deposition? 11 A. I think it's now three times. 12 Q. And each time you've met, have you spent all 13 day with the attorneys for AGA? 14 A. Yes. 15 Q. And which attorneys from AGA have -- did you 16 meet with? 17 A. R.J., Marlee Jansen, Tara Norgard. 18 Q. So, you indicated that you reviewed a number 19 of documents and many, many patents associated with 20 this case. 21 Did you speak to anyone from AGA in 22 preparation for the deposition? 23 A. At our meetings, yes. 24 Q. Okay. And at your -- who else other than 25 Marlee Jansen, Tara Norgard, and R.J. Zayed were at</p>	<p style="text-align: right;">Page 12</p> <p>1 very short conversation, conference call. And I -- I 2 must say, I can't remember exact . . . 3 Q. Was it associated with your testimony in the 4 case? 5 A. Yes. It had to do with -- 6 MR. ZAYED: Objection. 7 I'll instruct you not to answer. 8 Under Rule 26, you're only entitled to 9 communications which disclose facts on which he is 10 relying upon for his report. 11 Q. (BY MS. WANG) Okay. So let me back up and 12 ask that foundation question. 13 During the conversation with 14 Dr. Bhattacharya, did you discuss any of the facts or 15 data that you've relied upon, including any of the 16 patents that you use in terms of your invalidity 17 analysis? 18 A. No. I just listened. 19 Q. Okay. And are you going to follow 20 Mr. Zayed's instruction not to testify? 21 A. If he says so, yes. 22 MR. ZAYED: And I do say so. You're 23 instructed not to answer. 24 Q. (BY MS. WANG) Did you speak with AGA's 25 expert, Amy Armstrong?</p>
<p style="text-align: right;">Page 11</p> <p>1 those meetings? 2 A. One other time there was somebody whose name 3 I don't remember. 4 Q. But you understood them to be an employee of 5 AGA? 6 A. Of the law firm. 7 Q. Of the law firm. Okay. 8 So, putting aside the law firm, did you speak 9 to anyone from AGA Medical in preparation for this 10 deposition? 11 A. In preparation of deposition, no. 12 Q. Okay. And at any time during your work on 13 this particular case, have you spoken to 14 representatives of AGA Medical? 15 A. No, I don't think so. 16 Q. Did you speak with any of AGA's other experts 17 in this case? 18 A. On the phone conversation, yes. 19 Q. Okay. And when was that phone conversation? 20 A. Yesterday. 21 Q. Okay. And which experts did you speak with? 22 A. Dr. Bhattacharya. 23 Q. And in general, what were -- what was the 24 topic of your conversation with Dr. Bhattacharya? 25 A. What were we talking about? It was a very,</p>	<p style="text-align: right;">Page 13</p> <p>1 A. Not about the case. 2 Q. Okay. Have you ever spoken with 3 Dr. Armstrong? 4 A. Yeah. I was visiting professor at the 5 University of Michigan and we spoke a lot. But 6 not -- I didn't even know she was on the case. 7 Q. Okay. So, when were you a visiting professor 8 at the University of Michigan? 9 A. Two months ago, three months ago. 10 Q. And how long was your tenure as a visiting 11 professor at the University of Michigan? 12 A. Two days. 13 Q. During that time, you didn't speak to 14 Dr. Armstrong about this case? 15 A. No. 16 Q. And at any time, have you spoken to 17 Dr. Armstrong about this case? 18 A. No. 19 Q. Prior to your visit as a visiting -- sorry. 20 I'll restate that. 21 Prior to your tenure as a visiting professor 22 at University of Michigan, did you know 23 Dr. Armstrong? 24 A. No. 25 Q. Had you ever seen any presentations by</p>

4 (Pages 10 to 13)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 14</p> <p>1 Dr. Armstrong?</p> <p>2 A. No.</p> <p>3 Q. Had you worked on any committees with</p> <p>4 Dr. Armstrong?</p> <p>5 A. No.</p> <p>6 Q. Had you read any publications by</p> <p>7 Dr. Armstrong?</p> <p>8 A. I don't think so. She may have been a</p> <p>9 coauthor, but not a . . .</p> <p>10 Q. Okay. Did you have any role in reviewing</p> <p>11 Dr. Armstrong's report in this case?</p> <p>12 A. No.</p> <p>13 Q. And have you, in fact, reviewed her report?</p> <p>14 A. No.</p> <p>15 Q. And you're not here today to give any</p> <p>16 opinions on whether or not the accused product, the</p> <p>17 helix device, infringes?</p> <p>18 A. That's correct.</p> <p>19 Q. Okay. So, yesterday you spoke to</p> <p>20 Dr. Bhattacharya. Was that the first time you had</p> <p>21 spoken to Dr. Bhattacharya about this case?</p> <p>22 A. Yes.</p> <p>23 Q. And prior to speaking with Dr. Bhattacharya</p> <p>24 yesterday about the case, had you --</p> <p>25 A. If I can just say, I listened. I didn't</p>	<p style="text-align: right;">Page 16</p> <p>1 scale from me.</p> <p>2 Q. Right. So, when you say he's not a</p> <p>3 physician, he's not a cardiologist?</p> <p>4 A. No.</p> <p>5 Q. And then, in terms of, I think you said he's</p> <p>6 a metals guy?</p> <p>7 A. I believe. I mean, he's -- he's -- knows</p> <p>8 more about metals than I know about medicine.</p> <p>9 Q. Okay. You're not here today to provide any</p> <p>10 testimony about Dr. Bhattacharya's qualifications,</p> <p>11 are you?</p> <p>12 A. No.</p> <p>13 Q. And you're not here today to provide any</p> <p>14 testimony about Dr. Armstrong's qualifications, are</p> <p>15 you?</p> <p>16 A. No.</p> <p>17 Q. Have you had occasion to speak with AGA's</p> <p>18 expert, Dr. Timothy Nantell?</p> <p>19 A. I don't think so.</p> <p>20 Q. He is the damages expert in this case.</p> <p>21 A. No, I haven't spoken to him.</p> <p>22 Q. So, I'm just going to finish out this line of</p> <p>23 questioning, even though I think I probably know your</p> <p>24 answers.</p> <p>25 You didn't have occasion to talk to</p>
<p style="text-align: right;">Page 15</p> <p>1 speak.</p> <p>2 Q. Okay. Prior to listening to Dr. Bhattacharya</p> <p>3 yesterday about the case, had you had the opportunity</p> <p>4 to talk to Dr. Bhattacharya about this case?</p> <p>5 A. No.</p> <p>6 Q. And prior to yesterday, had you met</p> <p>7 Dr. Bhattacharya before?</p> <p>8 A. Yes.</p> <p>9 Q. Have you worked with Dr. Bhattacharya before?</p> <p>10 A. On a previous case, yes.</p> <p>11 Q. What previous case was that?</p> <p>12 A. Medtronic versus AGA.</p> <p>13 Q. And in that case, you were AGA's expert; is</p> <p>14 that correct?</p> <p>15 A. Yes.</p> <p>16 Q. Other than your work with Dr. Bhattacharya on</p> <p>17 the AGA -- the Medtronic versus AGA case, have you</p> <p>18 had any other occasion to work with Dr. Bhattacharya?</p> <p>19 A. No.</p> <p>20 Q. Do you know anything about Dr. Bhattacharya's</p> <p>21 qualifications?</p> <p>22 A. He's not a physician. He's a Ph.D. in</p> <p>23 metal -- metallurgy, metal. Very, very smart guy.</p> <p>24 Q. Sure.</p> <p>25 A. But you know, he's talking on a different</p>	<p style="text-align: right;">Page 17</p> <p>1 Dr. Nantell after his deposition on March 1st?</p> <p>2 A. I didn't know he had a deposition, no.</p> <p>3 Q. Okay. And did you review Dr. Nantell's</p> <p>4 expert report at all?</p> <p>5 A. No.</p> <p>6 Q. And to your knowledge, did you provide any</p> <p>7 information to Dr. Nantell for his expert report or</p> <p>8 his deposition?</p> <p>9 A. Not that I know of.</p> <p>10 Q. Okay. And to your knowledge, have you ever</p> <p>11 met with Dr. Nantell?</p> <p>12 A. I don't think so.</p> <p>13 Q. Okay. Have you spoken to Dr. Kurt Amplatz</p> <p>14 about this case at all?</p> <p>15 A. About the case, no.</p> <p>16 Q. But you've had occasion to cross paths with</p> <p>17 Dr. Amplatz before?</p> <p>18 A. Many times.</p> <p>19 Q. When was the last time you spoke with</p> <p>20 Dr. Amplatz?</p> <p>21 A. He didn't come to the PICS. It's probably</p> <p>22 been a year, at the Pediatric Interventional meeting.</p> <p>23 Q. And so when you say he didn't come to the</p> <p>24 PICS, are you talking about the Pediatric</p> <p>25 Interventional Cardiologists conference --</p>

5 (Pages 14 to 17)

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3/6/2013

<p style="text-align: right;">Page 18</p> <p>1 A. Right.</p> <p>2 Q. -- that was held in Miami this year?</p> <p>3 A. Yes.</p> <p>4 Q. So, we're going to be talk about a number of</p> <p>5 patents that I think you've indicated that you've</p> <p>6 read.</p> <p>7 Did you speak to any of the inventors on</p> <p>8 those patents in preparation of your report?</p> <p>9 MR. ZAYED: Object to the form.</p> <p>10 A. In preparation for the report, no. But prior</p> <p>11 to that over the years, many times.</p> <p>12 Q. (BY MS. WANG) Sure. And when we go through</p> <p>13 the individual patents, then I'll ask you about some</p> <p>14 individual inventors.</p> <p>15 Did you speak to any of the inventors on the</p> <p>16 patents that are the subject of the reports here in</p> <p>17 preparation for deposition?</p> <p>18 A. No.</p> <p>19 Q. So, I'm going to move into some questions</p> <p>20 that I'm going to sort of ask that may be sensitive</p> <p>21 to you. They're just about the compensation that</p> <p>22 you've received from AGA over the years and --</p> <p>23 associated with this case.</p> <p>24 So, I'm not trying to delve too -- into</p> <p>25 sensitive materials, but I need to understand your</p>	<p style="text-align: right;">Page 20</p> <p>1 February. And that was after I retired.</p> <p>2 Q. Okay. Do you recall who represented AGA in</p> <p>3 that case?</p> <p>4 A. Mike Conners was the lawyer, but I don't know</p> <p>5 what firm.</p> <p>6 Q. Okay.</p> <p>7 A. I mean, I've got it written down at home,</p> <p>8 but . . .</p> <p>9 Q. That's fine.</p> <p>10 What area did you render an expert opinion?</p> <p>11 A. About the AGA device and the use of the AGA</p> <p>12 device and the uniqueness of the AGA device, the ASD</p> <p>13 device.</p> <p>14 Q. Okay. So it sounds like you rendered an</p> <p>15 opinion on non-infringement; is that correct?</p> <p>16 A. Oh, I'm not sure.</p> <p>17 Q. Do you know, did you give deposition</p> <p>18 testimony in that case?</p> <p>19 A. I testified in court, I think. I think I</p> <p>20 must have given deposition ahead of time.</p> <p>21 Q. And then you testified at trial?</p> <p>22 A. Yes.</p> <p>23 Q. What was the outcome of that case?</p> <p>24 A. I think AGA lost the case, but there was a</p> <p>25 contingency problem. It was about the patent on the</p>
<p style="text-align: right;">Page 19</p> <p>1 compensation structure.</p> <p>2 MS. WANG: So, R.J., if you want to</p> <p>3 designate it confidential or anything in deference to</p> <p>4 Dr. Mullins, I'm fine with that. But I just wanted</p> <p>5 to let Dr. Mullins know that -- where I was going</p> <p>6 next and so you would be comfortable with that.</p> <p>7 Q. (BY MS. WANG) Dr. Mullins, you've indicated</p> <p>8 that you've served as an expert for AGA a number of</p> <p>9 times in patent cases; is that right?</p> <p>10 A. Yes.</p> <p>11 Q. And when was the first patent case that you</p> <p>12 served for AGA?</p> <p>13 A. The Medtronic AGA case.</p> <p>14 Q. And that was in about 2007?</p> <p>15 A. I thought maybe it was before that, but,</p> <p>16 yeah --</p> <p>17 Q. Okay.</p> <p>18 A. -- roughly, then, yes.</p> <p>19 Q. Do you recall whether or not it was before or</p> <p>20 after you retired as a professor?</p> <p>21 A. Right about the time I did. It might have</p> <p>22 actually gapped over both before and after, I</p> <p>23 believe.</p> <p>24 Q. Okay.</p> <p>25 A. I think the final was in January of '07 or</p>	<p style="text-align: right;">Page 21</p> <p>1 metal, nitinol.</p> <p>2 They lost, but they still were allowed to use</p> <p>3 the metal. So, I don't -- they thought it was a win.</p> <p>4 I thought the amount of money they lost was a</p> <p>5 terrible loss, but . . .</p> <p>6 Q. Okay. Do you recall how much you were</p> <p>7 compensated for your work on that case?</p> <p>8 A. I think it ended up probably -- I spent two</p> <p>9 different trips to San Francisco and a week at a</p> <p>10 time out there. And I think it was very close to</p> <p>11 \$75,000.</p> <p>12 MR. ZAYED: I want to designate the</p> <p>13 information as outside attorney's eyes only.</p> <p>14 A. But I'm guessing. I don't remember the</p> <p>15 specific numbers.</p> <p>16 Q. (BY MS. WANG) I think in your report -- and</p> <p>17 why don't I go ahead and hand you your report.</p> <p>18 MS. WANG: Let's mark this</p> <p>19 Exhibit 289.</p> <p>20 (Exhibit 289 is marked.)</p> <p>21 A. How did we get to 289 so soon?</p> <p>22 Q. (BY MS. WANG) There have been a lot of other</p> <p>23 depositions in this case, Dr. Mullins. And</p> <p>24 thankfully you haven't had to be the witness in them.</p> <p>25 MR. ZAYED: They're giving you the</p>

6 (Pages 18 to 21)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 22</p> <p>1 official one.</p> <p>2 Q. (BY MS. WANG) Dr. Mullins, do you recognize</p> <p>3 what's been marked as Exhibit 289?</p> <p>4 A. I think so, yes.</p> <p>5 Q. And can you identify it for the record,</p> <p>6 please?</p> <p>7 A. This is the written copy of my statements</p> <p>8 concerning the various patents we reviewed and the</p> <p>9 questions concerning them.</p> <p>10 Q. Now, if you look at page -- I believe 121 of</p> <p>11 this document, toward the end.</p> <p>12 A. It should be my signature.</p> <p>13 Q. That's right. Is that your signature on a</p> <p>14 page -- it doesn't actually bear a page number,</p> <p>15 but --</p> <p>16 A. Yes.</p> <p>17 Q. Did you draft this document?</p> <p>18 A. I drafted the ideas in it. The exact</p> <p>19 wording, I had a lot of help with, with making it in</p> <p>20 legible legalese.</p> <p>21 Q. That's fine.</p> <p>22 Who worked with you in drafting the report?</p> <p>23 A. R.J., Marlee, Tara, all of them.</p> <p>24 Q. Did you have an opportunity to review the</p> <p>25 full report before you signed it?</p>	<p style="text-align: right;">Page 24</p> <p>1 interventional cardiologist; is that correct?</p> <p>2 A. Correct.</p> <p>3 Q. And you -- when you relied upon materials,</p> <p>4 you cited them, didn't you?</p> <p>5 A. Yes.</p> <p>6 Q. Is there anything about your report at this</p> <p>7 point that you want to amend or correct?</p> <p>8 A. Well, your last statement, some of my</p> <p>9 materials are -- were from personal experience with</p> <p>10 devices. And I don't know that I put in personal</p> <p>11 experience on each one of those, but . . .</p> <p>12 Q. Okay. Other than the fact that sometimes you</p> <p>13 relied on your personal experience with devices --</p> <p>14 A. Right.</p> <p>15 Q. -- if you relied upon reading something in a</p> <p>16 patent, you cited it; is that right?</p> <p>17 A. Yes.</p> <p>18 Q. And if you read a piece of medical literature</p> <p>19 and you relied upon it, you cited it; is that</p> <p>20 correct?</p> <p>21 A. Yes.</p> <p>22 Q. Is there anything about your expert report</p> <p>23 sitting here today that you want to amend or correct</p> <p>24 before we go on with the deposition?</p> <p>25 A. No.</p>
<p style="text-align: right;">Page 23</p> <p>1 A. Yes.</p> <p>2 Q. And to the best of your knowledge, are the</p> <p>3 statements in the report truthful?</p> <p>4 A. Yes.</p> <p>5 Q. And to the best of your knowledge, are the</p> <p>6 statements in the report accurate?</p> <p>7 A. Yes.</p> <p>8 Q. You understood when you were drafting the</p> <p>9 report that you were under an obligation under the</p> <p>10 Federal rules of evidence to state all the facts and</p> <p>11 data that you considered in rendering your opinion;</p> <p>12 is that correct?</p> <p>13 A. Yes, I -- I think, yeah.</p> <p>14 Q. And to the best of your ability, you</p> <p>15 discharged that obligation by putting forth all the</p> <p>16 data and all the facts that you considered in</p> <p>17 rendering your opinion; is that correct?</p> <p>18 A. Within the limits of not having a 500-page</p> <p>19 document, yes.</p> <p>20 Q. You cited disclosures from the patents that</p> <p>21 you thought supported your positions when it was</p> <p>22 appropriate; is that correct?</p> <p>23 A. Yes.</p> <p>24 Q. And you cited or stated your expert opinion</p> <p>25 based on your 45 years of experience as a pediatric</p>	<p style="text-align: right;">Page 25</p> <p>1 Q. Have you reviewed any evidence after you</p> <p>2 submitted this report on February 15th?</p> <p>3 MR. ZAYED: Object to the form.</p> <p>4 A. We reviewed the materials in the report.</p> <p>5 Q. (BY MS. WANG) Okay.</p> <p>6 A. But nothing extra.</p> <p>7 Q. Okay. So, other than, which we'll go over,</p> <p>8 the materials that are listed in the report and</p> <p>9 attached to the report as exhibit -- as exhibits, did</p> <p>10 you review any other material in preparation for this</p> <p>11 deposition?</p> <p>12 A. I looked at angio slides and things of my own</p> <p>13 collection.</p> <p>14 Q. Uh-huh.</p> <p>15 A. In addition to that, no.</p> <p>16 Q. Now, when you looked at angios and slides</p> <p>17 from your own collection, did seeing any of those</p> <p>18 change the opinions that you rendered in this report?</p> <p>19 A. No. They solidified them.</p> <p>20 Q. Now, I'm going to ask you to turn to</p> <p>21 Exhibit 2 to your deposition -- or I'm sorry, to your</p> <p>22 expert report.</p> <p>23 A. Okay.</p> <p>24 Q. And Exhibit 2 is a list of Materials</p> <p>25 Considered.</p>

7 (Pages 22 to 25)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 26</p> <p>1 Do you see that?</p> <p>2 A. Yes.</p> <p>3 Q. And in preparation of this report, and for</p> <p>4 the deposition, other than the materials listed on</p> <p>5 Exhibit 2 and recited in this report, did you</p> <p>6 consider any other additional materials?</p> <p>7 MR. ZAYED: Object to the form.</p> <p>8 A. This doesn't include the list of a hundred</p> <p>9 patents.</p> <p>10 Q. (BY MS. WANG) Okay.</p> <p>11 A. Or does it? I mean, I don't know what some</p> <p>12 of these numbers mean, but --</p> <p>13 Q. So --</p> <p>14 A. -- there were many, many patents we looked</p> <p>15 at.</p> <p>16 Q. Okay. So, you looked at --</p> <p>17 A. I looked at.</p> <p>18 Q. -- the patents that were at issue as prior</p> <p>19 art in this case?</p> <p>20 A. Yes.</p> <p>21 Q. Other than patents that were at issue that</p> <p>22 you discuss in this --</p> <p>23 A. Right.</p> <p>24 Q. -- report, did you look at any other patents?</p> <p>25 A. Well, there's some that are not discussed</p>	<p style="text-align: right;">Page 28</p> <p>1 A. I mean, I did not review it.</p> <p>2 Q. And you did not review the expert report of</p> <p>3 Dr. Bhattacharya?</p> <p>4 A. No.</p> <p>5 Q. And you did not review the expert report of</p> <p>6 Dr. Nantell?</p> <p>7 MR. ZAYED: Object to the form.</p> <p>8 A. No.</p> <p>9 Q. (BY MS. WANG) In preparing your report, did</p> <p>10 you review any kinds of nonpatent or nonmedical</p> <p>11 materials other than what's listed in Exhibit 2?</p> <p>12 A. As you say, I looked at some of my old angios</p> <p>13 and cases pertinent to the case.</p> <p>14 Q. Sure. And I'm not trying to trick you at</p> <p>15 all. There are some documents listed on Exhibit 2,</p> <p>16 Dr. Mullins.</p> <p>17 MR. ZAYED: Dr. Mullins, why don't you</p> <p>18 review Exhibit 2 in its entirety before answering.</p> <p>19 Q. (BY MS. WANG) For instance, Amplatzer 35</p> <p>20 millimeter PFO device, AGA Gore, G-Med, Gore, Gore,</p> <p>21 those are nonmedical nonpatent documents.</p> <p>22 So, other than the ones listed on Exhibit 2,</p> <p>23 have you reviewed any other nonpatent or nonmedical</p> <p>24 literature in preparation for the report or</p> <p>25 deposition?</p>
<p style="text-align: right;">Page 27</p> <p>1 that were included in the prior art that I looked at.</p> <p>2 Q. Okay. Anything else?</p> <p>3 A. No.</p> <p>4 Q. Did the patents that you looked at that were</p> <p>5 not included in this report, but that were included</p> <p>6 in your packet of material, did you rely upon them in</p> <p>7 rendering your opinions in this case?</p> <p>8 A. No.</p> <p>9 Q. Did you look at what's called the prosecution</p> <p>10 history of the 738 patent, so it's the file that goes</p> <p>11 back and forth between the United States patent and</p> <p>12 trademark office and the patent --</p> <p>13 A. No.</p> <p>14 Q. -- applicant?</p> <p>15 A. No, I don't think so.</p> <p>16 Q. And you're not here today to provide any</p> <p>17 opinion as to why certain references may have been</p> <p>18 included or not included in that prosecution of the</p> <p>19 738 patent, are you?</p> <p>20 A. No.</p> <p>21 Q. So, I think you said that you haven't</p> <p>22 reviewed the expert report of Dr. Armstrong; is that</p> <p>23 right?</p> <p>24 A. No, I didn't.</p> <p>25 Q. And --</p>	<p style="text-align: right;">Page 29</p> <p>1 A. I don't believe so.</p> <p>2 Q. And you didn't have occasion to review any</p> <p>3 kind of licensing agreements related to cardiac</p> <p>4 occluders?</p> <p>5 A. No.</p> <p>6 Q. And you didn't have occasion to review any</p> <p>7 kind of marketing materials from Gore other than</p> <p>8 what's listed on Exhibit 2?</p> <p>9 A. I looked at one marketing, but where is --</p> <p>10 Q. They are probably listed as Bates numbers,</p> <p>11 Dr. Mullins.</p> <p>12 A. The Gore --</p> <p>13 Q. The Gore documents. But other than the ones</p> <p>14 listed in this exhibit, you didn't --</p> <p>15 A. I don't know what these numbers are.</p> <p>16 Q. Okay.</p> <p>17 A. But I did look at a marketing document from</p> <p>18 Gore.</p> <p>19 Q. Okay. And you would assume that if you</p> <p>20 looked at the marketing document from Gore, that you</p> <p>21 or your -- or the counsel for AGA would have listed</p> <p>22 them?</p> <p>23 A. I would assume.</p> <p>24 Q. Did you do any sort of independent research</p> <p>25 on the Gore Website in preparation for your expert</p>

8 (Pages 26 to 29)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 30</p> <p>1 testimony?</p> <p>2 A. No.</p> <p>3 Q. And did you look at any AGA Medical marketing</p> <p>4 materials in preparation for your report or</p> <p>5 deposition?</p> <p>6 A. No.</p> <p>7 Q. Now, taking a look at the your background,</p> <p>8 you have a wealth of experience with heart defects,</p> <p>9 and -- as a pediatric interventional cardiologist.</p> <p>10 So you're a specialist in pediatric</p> <p>11 interventional cardiology; is that correct?</p> <p>12 A. In pediatric and congenital.</p> <p>13 Q. Okay. And so, can you tell me what that</p> <p>14 means?</p> <p>15 A. Well, pediatric is usually limited to less</p> <p>16 than 18 years of age. We've done a good enough job</p> <p>17 that many of the patients are now in their 50's and</p> <p>18 60's. And the pediatric cardiologist frequently</p> <p>19 follows those patients.</p> <p>20 And I trained in adult cardiology. So, I was</p> <p>21 comfortable with following these patients.</p> <p>22 Q. And so, that was something that you did</p> <p>23 throughout your career, was, perhaps, start with a</p> <p>24 patient when the patient was a child, and then follow</p> <p>25 them into adulthood?</p>	<p style="text-align: right;">Page 32</p> <p>1 A. Depending on the defect. But for atrioseptal</p> <p>2 defects and VSDs, yes, open-heart surgery.</p> <p>3 Q. Now, you mentioned "VSDs."</p> <p>4 What do you mean by "VSD"?</p> <p>5 A. Ventricular septal defect.</p> <p>6 Q. And what do you mean by an atrial septal</p> <p>7 defect?</p> <p>8 A. Atrial septal defect is a hole between the</p> <p>9 two uppers chambers of the heart, low-pressure</p> <p>10 chambers.</p> <p>11 A ventricular septal defect is a defect</p> <p>12 between two the pumping chambers, high-pressure,</p> <p>13 muscular chambers. And generally there's a much</p> <p>14 higher gradient, pressure gradient.</p> <p>15 Q. And when you say "defect," what do you mean?</p> <p>16 A. Basically a hole.</p> <p>17 Q. When did you first start using transcatheter</p> <p>18 treatment methods to correct cardiac defects?</p> <p>19 A. Well, I think the first -- first -- the first</p> <p>20 device wasn't for correcting. It was for palliating.</p> <p>21 It was a balloon septostomy in 1967.</p> <p>22 Q. Okay. After the balloon septostomy, when was</p> <p>23 the first device that you personally used to try to</p> <p>24 close an atrial septal defect?</p> <p>25 A. 1979 or 1980, the Rashkin hooked umbrella</p>
<p style="text-align: right;">Page 31</p> <p>1 A. Yes. But I also started with some adults and</p> <p>2 followed them further.</p> <p>3 Q. I think you've previously testified that:</p> <p>4 Pediatric interventional cardiology as a specialized</p> <p>5 field performing procedures on children and infants</p> <p>6 is more difficult given that infant variations in the</p> <p>7 complex congenital heart defects and the much smaller</p> <p>8 size of the patients' blood vessels and heart."</p> <p>9 MR. ZAYED: Object to the form.</p> <p>10 Q. (BY MS. WANG) Would you still agree with</p> <p>11 that statement?</p> <p>12 A. Yes.</p> <p>13 Q. Is it accurate to say that you began</p> <p>14 practicing before transcatheter procedures were</p> <p>15 commonplace?</p> <p>16 A. Yes.</p> <p>17 Q. And did you start practicing before</p> <p>18 transcatheter procedures were really even available?</p> <p>19 A. Yes.</p> <p>20 Q. Prior to transcatheter procedures being</p> <p>21 available to close cardiac defects, what methods were</p> <p>22 used?</p> <p>23 A. The patients were referred to surgery.</p> <p>24 Q. And when you say "surgery," do you mean</p> <p>25 open-heart surgery?</p>	<p style="text-align: right;">Page 33</p> <p>1 device, ASD device.</p> <p>2 Q. And so, that was prior to the invention of</p> <p>3 the patent that's been sued here; is that correct?</p> <p>4 A. By decades.</p> <p>5 Q. I think you mentioned that there were --</p> <p>6 prior to transcatheter methods of correcting cardiac</p> <p>7 defects, the option was open-heart surgery; is that</p> <p>8 correct?</p> <p>9 A. Correct.</p> <p>10 Q. Did you treat all atrial septal defects that</p> <p>11 you discovered?</p> <p>12 MR. ZAYED: Object to the form.</p> <p>13 A. Prior to device closure?</p> <p>14 Q. (BY MS. WANG) Right.</p> <p>15 A. Probably not all. But 98 percent.</p> <p>16 Q. So, let me ask it a different way.</p> <p>17 Is there a particular size that the defect</p> <p>18 has to be before a physician feels like it needs to</p> <p>19 be closed?</p> <p>20 MR. ZAYED: Object to the form.</p> <p>21 A. That's a judgment call. Also depends on the</p> <p>22 age of the patient.</p> <p>23 Q. (BY MS. WANG) Okay.</p> <p>24 A. But, in general, I mean, a 2-millimeter</p> <p>25 defect you wouldn't pay much attention to on a child.</p>

9 (Pages 30 to 33)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 34</p> <p>1 You wouldn't know it was there unless you did a 2 catheterization. 3 Whereas in an adult, that could be a very 4 serious problem. 5 Q. Why is that? 6 A. Heart starts functioning poorly, and instead 7 of shunting from the left atrium to the right atrium, 8 it shunts the other way, which allows clots to get 9 into the brain and the heart. 10 Q. Were you aware that Gore-Tex patches were 11 used in open-heart surgery to close cardiac defects? 12 A. Of course, yes. 13 Q. And did you ever refer patients to surgery 14 for use with Gore patches? 15 MR. ZAYED: Object to the form. 16 A. Well, surgeons never listen to anybody. I 17 referred them to surgery. And there they used 18 Gore-Tex or pericardium or Dacron was -- whatever the 19 whim of the day was for them. 20 Q. (BY MS. WANG) Sure. When did you first hear 21 of Gore-Tex patches being used to close cardiac 22 defects? 23 A. I'm not sure. 24 Q. Was -- 25 A. It was quite awhile ago.</p>	<p style="text-align: right;">Page 36</p> <p>1 anything to improve the function of the heart. 2 Q. Okay. So, I'm -- I'm sure you've discovered 3 this. I'm not a medical doctor. So I'll be asking 4 you some follow-up questions today just to clarify. 5 So, when you say "diuretics," what do you 6 mean? 7 A. Pull fluid off the body. 8 Q. Okay. And when you say "digitalis," what do 9 you mean? 10 A. It's a cardiogenic -- it enhances 11 contractility. 12 Q. And these are all to improve the functioning 13 of the heart? 14 A. Correct. 15 Q. And that's an alternative to surgery? 16 MR. ZAYED: Object to the form. 17 A. It usually a temporary alternative, yes. 18 Q. (BY MS. WANG) But that's an alternative to 19 transcatheter closure? 20 MR. ZAYED: Object to the form. 21 A. Yes. 22 Q. (BY MS. WANG) And then I think you said 23 "lifestyle changes." 24 What did you mean by that? 25 A. Somebody's obese, it's not helping if they've</p>
<p style="text-align: right;">Page 35</p> <p>1 Q. Do you think that it's been in the last two 2 decades? 3 MR. ZAYED: Object to the form. 4 A. Yeah, probably within the last two decades. 5 Let's see. Well, I'm not sure when Gore-Tex first 6 appeared as a medical, but . . . 7 Q. (BY MS. WANG) Is it still an option today? 8 A. Yes. 9 Q. Is it correct to say that even today, some 10 patients aren't amenable to transcatheter devices? 11 A. Yes. 12 Q. And why is that? 13 A. Well, the devices require something to seat 14 them on. And some of the defects are very eccentric. 15 Some of them were too large, even for the existing 16 large devices. So, they're not applicable for 17 closure. 18 Q. What are the patient's options if they're 19 not -- they're not amenable to transcatheter device 20 closure? 21 A. Sometimes medical therapy, but usually 22 surgery. 23 Q. And when you say "medical therapy," what do 24 you mean? 25 A. Diuretics, digitalis, lifestyle change,</p>	<p style="text-align: right;">Page 37</p> <p>1 got a hole in their heart as well. So, trying to -- 2 or smoking, or the normal cardiac lifestyle changes. 3 Q. I think your expert report, and you're 4 welcome to look at it, indicates on Page 4 that you 5 retired at the end of 2006? 6 A. Correct. 7 Q. Is that correct? 8 A. That's correct. 9 Q. And have you performed any catheterization 10 procedures since that time? 11 MR. ZAYED: Object to the form. 12 A. Yes. 13 Q. (BY MS. WANG) And how many have you 14 performed? 15 A. Well, in -- in patients, humans, three, now. 16 In animal work, probably 60. 17 Q. And when you say "animal work," what do you 18 mean? 19 A. I'm working with a geneticist on some baboon 20 work and I'm sort of the plumber for the 21 geneticist -- 22 Q. Okay. 23 A. -- in transferring genes. But we have to 24 do -- actually have to place four lines in the 25 animals.</p>

10 (Pages 34 to 37)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 38</p> <p>1 Q. Have you done any work on designing cardiac 2 occluder devices?</p> <p>3 MR. ZAYED: Object to the form.</p> <p>4 A. I -- I've added to designs. I designed the 5 transeptal sheaths, which are still used for delivery 6 of most devices.</p> <p>7 I worked with Dr. Rashkin on the Rashkin 8 device and added the second disk to that device.</p> <p>9 Q. (BY MS. WANG) Other than those devices, have 10 you been involved with the design of any cardiac 11 occlusion devices?</p> <p>12 MR. ZAYED: Object to the form.</p> <p>13 You stopped him before he finished 14 answering the question.</p> <p>15 Q. (BY MS. WANG) I'm sorry.</p> <p>16 MR. ZAYED: Let him finish answering 17 his question.</p> <p>18 Go ahead, continue.</p> <p>19 A. Well, no, I worked with the -- again, with 20 NMT, on the CardioSEALs and those. And again, we had 21 ideas, whether they're incorporated or not. But I 22 did not specifically design the device.</p> <p>23 Q. (BY MS. WANG) Since the time of your 24 retirement, have you maintained your knowledge of 25 interventional cardiology?</p>	<p style="text-align: right;">Page 40</p> <p>1 defect?</p> <p>2 A. It could be used as a sizing balloon. It's 3 sort of a modification of a sizing balloon. And it 4 could occlude it temporarily. We can't leave it 5 there.</p> <p>6 Q. It sounds like also that you still train 7 physicians?</p> <p>8 A. Yes.</p> <p>9 Q. And before we move on to the next topic, I 10 just want to close out on what you've done in terms 11 of consulting before we move on.</p> <p>12 So, I think you testified that you had 13 consulted and served as AGA's expert on the Medtronic 14 case.</p> <p>15 And if you want to take a look at your report 16 on Page 2, there's a list of other cases that you've 17 worked on.</p> <p>18 To the best of your knowledge, have you 19 listed all the cases that you've acted as an expert 20 on in the last five years?</p> <p>21 A. Well, I presume the Madrid, Spain, was the 22 same ongoing case with Occlutech. I testified in 23 Sweden on that.</p> <p>24 Q. Okay. And when you say you testified in 25 Sweden, did you testify in a trial?</p>
<p style="text-align: right;">Page 39</p> <p>1 A. I hope so.</p> <p>2 Q. Do you still attend conferences?</p> <p>3 A. Regularly.</p> <p>4 Q. And do you still read medical literature?</p> <p>5 A. Regularly.</p> <p>6 Q. And do you still speak with peers about 7 interventional cardiology?</p> <p>8 A. Yes.</p> <p>9 Q. You indicated that you were doing some animal 10 work with a geneticist?</p> <p>11 A. Yes.</p> <p>12 Q. Is that in the context of developing a 13 medical device?</p> <p>14 A. Actually, it is. It's a special balloon, 15 occlusion balloon. But that's not the purpose of my 16 doing it. I developed the balloon to assist the 17 geneticist in a project they were doing.</p> <p>18 Q. Okay.</p> <p>19 A. But it wasn't for the development of the 20 balloon.</p> <p>21 Q. And when you say a "balloon occluder," what 22 do you mean?</p> <p>23 A. It's a balloon you use to below it up in the 24 body to occlude various vessels.</p> <p>25 Q. Is it a balloon occluder for an atrial septal</p>	<p style="text-align: right;">Page 41</p> <p>1 A. Yes.</p> <p>2 Q. And do the Swedish have depositions? I don't 3 actually know.</p> <p>4 A. No.</p> <p>5 Q. No deposition.</p> <p>6 Did you testify in the Spanish action of AGA 7 against Occlutech?</p> <p>8 A. Yes.</p> <p>9 Q. And did you testify at trial?</p> <p>10 A. Yes.</p> <p>11 Q. Did you testify in any other times on behalf 12 of AGA involving the Occlutech matters?</p> <p>13 A. I gave a deposition in the India case, 14 against the Chinese company. I think it's Lifetech.</p> <p>15 Q. Any other testimony?</p> <p>16 A. I don't think so.</p> <p>17 Q. Did you testify or provide any sort of 18 opinion in the German matter?</p> <p>19 A. No.</p> <p>20 Q. And did you testify or give any opinion in 21 the U.K. matter --</p> <p>22 A. No.</p> <p>23 Q. -- against Occlutech?</p> <p>24 Did you testify or give any report in the 25 action in the Netherlands?</p>

11 (Pages 38 to 41)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 42</p> <p>1 A. No.</p> <p>2 Q. How much were you compensated by AGA for your</p> <p>3 work on the Occlutech matters?</p> <p>4 A. It stretched over about three years. And</p> <p>5 I -- I don't remember the total. But again, it had</p> <p>6 to be, you know -- I -- I would be just guessing.</p> <p>7 But I think --</p> <p>8 Q. Can you give me sort of a range?</p> <p>9 A. I think it would be in the total of, again,</p> <p>10 in the 80,000, something like that, for four trips to</p> <p>11 Europe.</p> <p>12 MR. ZAYED: Again, I'll designate this</p> <p>13 outside attorneys' eyes only. The amount that he's</p> <p>14 being compensated is personal to him.</p> <p>15 MS. WANG: That's fine.</p> <p>16 Q. (BY MS. WANG) In these various Occlutech</p> <p>17 matters, did you also issue reports?</p> <p>18 A. I don't think we made -- we certainly didn't</p> <p>19 go through this kind of business with -- as a report</p> <p>20 (indicating).</p> <p>21 Q. Did you provide any typewritten testimony?</p> <p>22 A. I don't think so.</p> <p>23 Q. Do you know what the outcome of the Occlutech</p> <p>24 cases were?</p> <p>25 A. Bad.</p>	<p style="text-align: right;">Page 44</p> <p>1 on invalidity?</p> <p>2 A. I think I did.</p> <p>3 Q. Was it your opinion that the patents that</p> <p>4 were getting asserted against AGA were invalid?</p> <p>5 A. Correct.</p> <p>6 Q. And when --</p> <p>7 MR. ZAYED: Object to the form.</p> <p>8 Q. (BY MS. WANG) And when you rendered that</p> <p>9 opinion, you did it based on the data that you had in</p> <p>10 front of you; is that correct?</p> <p>11 A. And my personal experience with both devices.</p> <p>12 Q. Right. And your personal experience with</p> <p>13 both devices.</p> <p>14 It was truthful?</p> <p>15 A. Yes.</p> <p>16 Q. And it was accurate?</p> <p>17 A. Yes.</p> <p>18 Q. How much were you compensated for your work</p> <p>19 on behalf of AGA in the University of Minnesota</p> <p>20 cases?</p> <p>21 A. Again, that was over three years, four years.</p> <p>22 And I -- I do not remember the total there.</p> <p>23 Q. Okay.</p> <p>24 A. It was in the \$20,000 here and 30,000 here,</p> <p>25 over a period of time. But I don't remember the</p>
<p style="text-align: right;">Page 43</p> <p>1 Q. When you say "bad," what do you mean?</p> <p>2 A. I think they ruled against AGA.</p> <p>3 Q. In all of the matters that we talked about?</p> <p>4 MR. ZAYED: Object to the form.</p> <p>5 A. Well, in the two that I was involved with.</p> <p>6 Q. (BY MS. WANG) Do you recall what the area of</p> <p>7 testimony that you gave in the Occlutech cases was?</p> <p>8 A. It was more in the similarities identity --</p> <p>9 identical nature of the two devices specifically.</p> <p>10 Q. And those were all patent cases?</p> <p>11 A. Yes.</p> <p>12 Q. I think it also says that you represented AGA</p> <p>13 in its litigation against the University of</p> <p>14 Minnesota; is that right?</p> <p>15 A. Yes.</p> <p>16 Q. And who represented AGA in that case?</p> <p>17 A. Same group.</p> <p>18 Q. And when you say the "same group," do you</p> <p>19 mean Carlson Caspers?</p> <p>20 A. Right.</p> <p>21 Q. What area did you render your expert opinion?</p> <p>22 A. More same as here, on -- on the devices, the</p> <p>23 similarities of devices, the differences in devices.</p> <p>24 Q. And when you say similarities and</p> <p>25 differences, do you recall writing an expert report</p>	<p style="text-align: right;">Page 45</p> <p>1 total.</p> <p>2 MR. ZAYED: Same designation, outside</p> <p>3 attorneys' eyes only as to numbers.</p> <p>4 Q. (BY MS. WANG) I think you also indicated</p> <p>5 that you represented AGA Medical against Lifetech</p> <p>6 sciences, the India company?</p> <p>7 A. That was the India case, yes.</p> <p>8 Q. And do you know what the outcome of that case</p> <p>9 was?</p> <p>10 A. I don't think it's done yet.</p> <p>11 Q. Do you know what the outcome of the</p> <p>12 University of Minnesota case was?</p> <p>13 A. Yes. That was in favor of AGA.</p> <p>14 Q. Do you know whether or not the patents in</p> <p>15 that case were found to be invalid?</p> <p>16 A. I don't know how they came to the conclusion,</p> <p>17 but they won the case.</p> <p>18 Q. Okay. Fair enough.</p> <p>19 Do you know how much you were compensated for</p> <p>20 the Lifetech case in India?</p> <p>21 A. I think it was \$47,000. That's the most</p> <p>22 recent.</p> <p>23 Q. Okay.</p> <p>24 MR. ZAYED: Same designation, outside</p> <p>25 attorneys' eyes only.</p>

12 (Pages 42 to 45)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 46</p> <p>1 MS. WANG: That's fine.</p> <p>2 Q. (BY MS. WANG) Now, on the University of</p> <p>3 Minnesota versus AGA case, did you work with any of</p> <p>4 the experts that are AGA experts on this case,</p> <p>5 Dr. Armstrong, Dr. Bhattacharya, or Dr. Nantell?</p> <p>6 A. No.</p> <p>7 Q. Have you served as an expert on a patent case</p> <p>8 for any company other than AGA Medical?</p> <p>9 A. No.</p> <p>10 Q. And have you consulted as an expert on any</p> <p>11 patent case other than for AGA Medical?</p> <p>12 A. No.</p> <p>13 Q. Since 2007, since you've retired from</p> <p>14 full-time practice as a professor, what percentage of</p> <p>15 your income has been derived from your work with AGA?</p> <p>16 MR. ZAYED: Object to the form.</p> <p>17 A. 20 percent.</p> <p>18 Q. (BY MS. WANG) What -- other than your</p> <p>19 20 percent of income from AGA, does the remainder of</p> <p>20 your income come from consulting?</p> <p>21 A. No, 401(k).</p> <p>22 Q. Okay.</p> <p>23 A. The only good thing Baylor did.</p> <p>24 Q. So, is it correct to say, then, that the</p> <p>25 compensation that you've received from working with</p>	<p style="text-align: right;">Page 48</p> <p>1 different area.</p> <p>2 Do you want to take a break, Dr. Mullins?</p> <p>3 A. I'll take a very quick bathroom break.</p> <p>4 THE VIDEOGRAPHER: The time is 9:27</p> <p>5 and we're off the record.</p> <p>6 (Break.)</p> <p>7 THE VIDEOGRAPHER: This is the</p> <p>8 beginning of Tape No. 2 to the deposition of</p> <p>9 Dr. Mullins. The time is 9:35 and we're on the</p> <p>10 record.</p> <p>11 Q. (BY MS. WANG) While we were on break, your</p> <p>12 counsel, or AGA's counsel, Dr. Mullins, indicated</p> <p>13 that you might want to correct something that you</p> <p>14 previously testified to?</p> <p>15 A. Yes. I apparently did talk with Timothy</p> <p>16 Nantell, the materials expert. I didn't remember his</p> <p>17 name.</p> <p>18 Q. Okay.</p> <p>19 A. So, that, I did have a conversation.</p> <p>20 Q. And when did you speak to Dr. Nantell?</p> <p>21 A. I was in Minneapolis, I don't know, six</p> <p>22 months ago. I don't know, or something.</p> <p>23 Q. And was that the only time you spoke with</p> <p>24 Dr. Nantell?</p> <p>25 A. I think there also was a phone conversation,</p>
<p style="text-align: right;">Page 47</p> <p>1 AGA as an expert since your retirement in 2011 is the</p> <p>2 only compensation that you're getting other than the</p> <p>3 401(k)?</p> <p>4 MR. ZAYED: Object to the form.</p> <p>5 A. I'm a consultant to one medical company.</p> <p>6 Q. (BY MS. WANG) Okay. And what medical</p> <p>7 company is that?</p> <p>8 A. New Med, Incorporated.</p> <p>9 Q. What does New Med, Incorporated, do?</p> <p>10 A. Make pediatric devices, primarily balloons.</p> <p>11 Q. Does New Med offer or manufacture any type of</p> <p>12 atrial septal occluder?</p> <p>13 A. No.</p> <p>14 Q. What percentage of your income is derived</p> <p>15 from being a consultant for New Med?</p> <p>16 MR. ZAYED: Object to the form.</p> <p>17 A. Probably about the same, 10 percent.</p> <p>18 MR. ZAYED: And again, I designate it</p> <p>19 as outside attorneys' eyes only, the 20 percent that</p> <p>20 he gets from AGA, the fact that he's a consultant for</p> <p>21 New Med, and that he gets 10 percent of his income</p> <p>22 from that. It's outside attorneys' eyes only.</p> <p>23 And it's starting to go far afield</p> <p>24 from relevance in this case.</p> <p>25 Q. (BY MS. WANG) I'm about to move into a</p>	<p style="text-align: right;">Page 49</p> <p>1 but I -- again, it's -- it didn't seem very relevant</p> <p>2 to me at the time and I didn't mark it down as a</p> <p>3 specific date.</p> <p>4 Q. Do you recall whether or not you reviewed</p> <p>5 Dr. Nantell's expert report?</p> <p>6 A. I don't believe I saw that. I saw a summary</p> <p>7 of damages.</p> <p>8 Q. Okay.</p> <p>9 A. And that was it.</p> <p>10 Q. What kind of information did you provide</p> <p>11 Dr. Nantell?</p> <p>12 A. We talked about some of the prior earlier</p> <p>13 devices, NMT devices in particular, and Bard devices.</p> <p>14 But aside from that, I don't think anything.</p> <p>15 Q. Did you give any background on transcatheter</p> <p>16 devices in general?</p> <p>17 A. Probably did. I mean, in talking about those</p> <p>18 devices, yes.</p> <p>19 Q. I'm going to turn your attention to your</p> <p>20 report again. And specifically to Page 4 and 5 of</p> <p>21 the report.</p> <p>22 And it looks like, Dr. Mullins, there's a</p> <p>23 list of devices that you've used over the years; is</p> <p>24 that correct?</p> <p>25 A. Yes.</p>

13 (Pages 46 to 49)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 50</p> <p>1 Q. And to the best of your knowledge sitting 2 here today, this is a complete list of the devices 3 that you've used over the years? 4 A. These are all occluding devices. I've used 5 lots of balloons and blade septostomy, that sort of 6 thing, in addition. 7 Q. But -- but in terms of devices to occlude 8 atrial septal defects, you've listed all the devices 9 that you've used or had personal experience with; is 10 that correct? 11 A. Yes. 12 Q. And so, I'm just going to take them one by 13 one and ask you some questions about them. 14 I think you've indicated in your report that 15 you've implanted more than 450 septal occlusion 16 devices in children and adults. 17 And so, the first bullet, you say you've 18 implanted a variety of AGA devices, including the 19 Amplatzer Septal Occluder, the Amplatzer Duct 20 Occluder, the Amplatzer Muscular VSD Occluder, and 21 the Vascular Plug 1? 22 A. Correct. 23 Q. Do you see that? 24 Now, if I refer to the Amplatzer Septal 25 Occluder as the "ASO" device, will you understand</p>	<p style="text-align: right;">Page 52</p> <p>1 Q. When was the first time you implanted an AGA? 2 A. I would have to go back to my CV. This was 3 in Poland with Dr. Mansura [phonetic], before it was 4 approved in the United States, we were giving a 5 course supposedly comparing NMT and AGA. 6 And all the defects were too large. So, he 7 instructed me on how to close them with AGA. 8 Q. Okay. Prior to your work with Dr. Mansura in 9 Poland -- 10 A. Right. 11 Q. -- had you heard of the AGA device? 12 A. Yes. 13 Q. And where had you heard of the AGA device? 14 A. It had been presented at least one time at 15 PICS, and at other meetings. It had started to 16 appear in the literature from the European 17 experience. 18 Q. When you say it was starting "to appear in 19 the literature from the European experience," what do 20 you mean? 21 A. Well, they do not have the constraints of the 22 FDA. And usually even though the device is developed 23 in the United States, they get approval. They have 24 much shorter trials and get approval much earlier. 25 So, the experience with it occurs in Europe.</p>
<p style="text-align: right;">Page 51</p> <p>1 what I'm referring to? 2 A. Yes. 3 Q. Within that subcategory of devices, which of 4 those AGA devices have you implanted the most? 5 A. The ASO device. 6 Q. And out of the 450, approximately, devices 7 that you've implanted in children and adults over the 8 years, what percentage or how many of those were 9 Amplatzer devices? 10 A. Of the ASD devices, probably half of them. 11 Q. And that's half of those 450? 12 A. Yes. 13 Q. So, is it accurate to say that you've 14 implanted more Amplatzer devices than any other type 15 of devices? 16 MR. ZAYED: Object to form. 17 A. Probably. NMT might be close. 18 Q. (BY MS. WANG) Did you implant any AGA 19 devices prior to their approval, their FDA approval, 20 in the United States? 21 MR. ZAYED: Object to the form. 22 A. No. 23 Q. (BY MS. WANG) Did you take part in any 24 clinical trials for AGA for any of its devices? 25 A. No.</p>	<p style="text-align: right;">Page 53</p> <p>1 Q. And I think you've previously testified that 2 sometimes the FDA is a barrier to device development; 3 is that correct? 4 MR. ZAYED: Object to the form. 5 A. Absolutely. 6 Q. (BY MS. WANG) So, in these various 7 conferences before you implanted the device with 8 Dr. Mansura where you had seen or heard of the 9 Amplatzer ASO -- 10 A. Right. 11 Q. -- had you actually seen a type of the ASO or 12 any pictures of it? 13 MR. ZAYED: Object to form. 14 And I'll state, you constantly mention 15 the "device." You asked Dr. Mullins earlier about -- 16 referring to an ASO, but now you talking about a 17 "device." 18 There's numerous AGA devices that 19 aren't listed. I'm just making sure that when you're 20 talking about the "device," your referring to the 21 ASO. 22 MS. WANG: Well, I think -- I'll be 23 clear on record -- 24 MR. ZAYED: My objection is to the 25 word the "device" as vague, ambiguous, unclear.</p>

14 (Pages 50 to 53)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 54</p> <p>1 MS. WANG: That's fine.</p> <p>2 Q. (BY MS. WANG) So, when I'm talking about AGA</p> <p>3 devices, I'm talking about any AGA device. But I'll</p> <p>4 be clearer, Dr. Mullins, when I'm talking about the</p> <p>5 ASO.</p> <p>6 A. Okay.</p> <p>7 Q. So, the device that you implanted with</p> <p>8 Dr. Mansura in Poland was the ASO device?</p> <p>9 A. Correct.</p> <p>10 Q. And that implantation happened in Poland,</p> <p>11 correct?</p> <p>12 A. Correct.</p> <p>13 Q. But prior to that implantation in Poland, you</p> <p>14 had had experience at conferences that you had</p> <p>15 already seen the ASO device?</p> <p>16 A. I believe so, yes. Well, I know so, yes.</p> <p>17 Q. And you believe that it was presented at</p> <p>18 PICS?</p> <p>19 A. I believe, yeah.</p> <p>20 Q. Is it common that devices are brought to</p> <p>21 conferences and presented to pediatric interventional</p> <p>22 cardiologists?</p> <p>23 A. Yes, very common.</p> <p>24 Q. And what's the purpose of that?</p> <p>25 A. Ego, I guess. No, it's a presentation --</p>	<p style="text-align: right;">Page 56</p> <p>1 that he's rendered. He's not here as fact witness.</p> <p>2 MS. WANG: That's fine.</p> <p>3 Q. (BY MS. WANG) You can answer.</p> <p>4 A. I don't think there's any confidentiality.</p> <p>5 It's -- you're presenting your data.</p> <p>6 Q. So, moving on to the Rashkin ASD device --</p> <p>7 but actually, let's strike that.</p> <p>8 Let me ask you -- finish asking you about the</p> <p>9 ASO before I move on to that.</p> <p>10 When was the first time you implanted the ASO</p> <p>11 in the United States?</p> <p>12 A. Probably a week after it was the approved. I</p> <p>13 don't remember the specific date.</p> <p>14 Q. Okay.</p> <p>15 A. But very shortly after it was approved -- FDA</p> <p>16 approved for congenital use.</p> <p>17 Q. Okay. I don't see on the list of the variety</p> <p>18 of AGA devices the AGA PFO device.</p> <p>19 A. It wasn't available.</p> <p>20 Q. And when you say "it wasn't available," what</p> <p>21 do you mean?</p> <p>22 A. By the time I retired.</p> <p>23 Q. Okay. So, you've never implanted an AGA PFO</p> <p>24 device?</p> <p>25 A. No.</p>
<p style="text-align: right;">Page 55</p> <p>1 when people have experience using a device, to share</p> <p>2 that experience with the others.</p> <p>3 And you know, sometimes they don't work and</p> <p>4 you need to know that. Sometimes, they work very</p> <p>5 well. You need to know that just as well. And so,</p> <p>6 they're sharing their experience.</p> <p>7 If we had the most experience, we would</p> <p>8 present it to them. And you present how to do it,</p> <p>9 how to use the device, what the problems are, the</p> <p>10 complications.</p> <p>11 So, it's a sharing of experience, which I</p> <p>12 think is different in the medical field as opposed to</p> <p>13 most industry.</p> <p>14 Q. Is that sharing of experience important to</p> <p>15 the medical industry?</p> <p>16 A. Extremely.</p> <p>17 Q. And are those conferences open to any</p> <p>18 physicians who want to attend?</p> <p>19 A. Yes.</p> <p>20 Q. Are there any sort of confidentiality</p> <p>21 obligations that you have associated with attending</p> <p>22 those conferences?</p> <p>23 MR. ZAYED: Object to the form. And</p> <p>24 quite frankly, it's -- I think it's bordering on</p> <p>25 being a lack of relevance with respect to the report</p>	<p style="text-align: right;">Page 57</p> <p>1 Q. And I also don't see the Amplatzer</p> <p>2 multi-fenestrated --</p> <p>3 A. Let me correct that. It was available on a</p> <p>4 protocol for a study. And I was part of that study,</p> <p>5 but we never included any -- I had seen it. We had</p> <p>6 never got any patients to agree to that FDA criteria.</p> <p>7 Q. Okay. So, I also don't see on the variety of</p> <p>8 AGA devices the multi-fenestrated -- the Amplatzer</p> <p>9 multi-fenestrated occluder.</p> <p>10 A. It wasn't available yet, either.</p> <p>11 Q. And when you say it wasn't available yet,</p> <p>12 either, you mean it wasn't available by the time you</p> <p>13 retired?</p> <p>14 A. Yes.</p> <p>15 Q. So you've never implanted an AGA -- what's</p> <p>16 known as a Cribriiform?</p> <p>17 A. Cribriiform, no.</p> <p>18 Q. Have you inspected either the Cribriiform or</p> <p>19 the PFO device?</p> <p>20 A. Yes.</p> <p>21 Q. And when was the first time you inspected</p> <p>22 either the Cribriiform or the PFO device?</p> <p>23 A. Whenever they came out and were available.</p> <p>24 The PFO device, we examined it before we agreed to</p> <p>25 get on the respect trial.</p>

15 (Pages 54 to 57)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 58</p> <p>1 But the Cribriform, I don't know. Whenever</p> <p>2 it was approved. I saw it with my colleagues. But</p> <p>3 the specific dates, I don't know.</p> <p>4 Q. So you first saw the Cribriform and the PFO</p> <p>5 devices in the context of your medical practice?</p> <p>6 A. PFO in the context, the Cribriform, I think,</p> <p>7 had been presented -- was available in Europe before</p> <p>8 I retired, but it wasn't available to us.</p> <p>9 Q. So, you've indicated that a number of devices</p> <p>10 are available in Europe that aren't available in the</p> <p>11 United States; is that right?</p> <p>12 A. Yes.</p> <p>13 Q. But is it common for people in the United</p> <p>14 States to know of the devices in Europe prior to</p> <p>15 their entry to the United States?</p> <p>16 A. Yes.</p> <p>17 MR. ZAYED: Object to form, calls for</p> <p>18 speculation, outside the scope of his expert report.</p> <p>19 Move to strike the answer.</p> <p>20 A. But, yes. The -- the pediatric cardiac</p> <p>21 interventional community is relatively small.</p> <p>22 And I may talk to somebody in Italy or in</p> <p>23 Spain today. So it's -- it's an open communication.</p> <p>24 So it's very common.</p> <p>25 Q. (BY MS. WANG) Now, the next one on your list</p>	<p style="text-align: right;">Page 60</p> <p>1 Clamshell device. And -- and when did that come out?</p> <p>2 Probably in the late '80s, also. And then, up until</p> <p>3 the time that I retired.</p> <p>4 Q. And was the NMT CardioSEAL occluder approved</p> <p>5 by the FDA?</p> <p>6 MR. ZAYED: Object to the form.</p> <p>7 A. It was approved for specific use by the FDA</p> <p>8 for ventricular septal defect, muscular ventricular</p> <p>9 defect occlusions.</p> <p>10 Q. (BY MS. WANG) And is that the only purpose</p> <p>11 you implanted them for?</p> <p>12 A. No.</p> <p>13 Q. What other purposes did you implant the NMT</p> <p>14 CardioSEAL occluder for?</p> <p>15 A. ASDs, PFOs.</p> <p>16 Q. And we'll get into those. But when you say</p> <p>17 "PFOs," what do you mean?</p> <p>18 A. Patent foramen ovale.</p> <p>19 Q. Was there a specific kind of PFOs you</p> <p>20 implanted the NMT device for?</p> <p>21 MR. ZAYED: Object to the form.</p> <p>22 A. By standard technique, yes. But by special</p> <p>23 techniques, no.</p> <p>24 Q. (BY MS. WANG) Okay. So let's take the</p> <p>25 standard technique first.</p>
<p style="text-align: right;">Page 59</p> <p>1 is the Rashkin ASD device?</p> <p>2 A. Yes.</p> <p>3 Q. When did you implant the Rashkin ASD device?</p> <p>4 A. The first time, I want to say February of</p> <p>5 '87. The date's the date before my infarct.</p> <p>6 Q. Okay. And how long did you implant the</p> <p>7 Rashkin ASD device?</p> <p>8 A. One more time after that.</p> <p>9 Q. Okay. And when you say it was the day before</p> <p>10 your infarct, what -- what are you referring to?</p> <p>11 A. Well, I had a medical problem the day after.</p> <p>12 Q. Right.</p> <p>13 A. I think it was unrelated, but . . .</p> <p>14 Q. What about the Rashkin PDA occluder? What</p> <p>15 time period did you implant that?</p> <p>16 A. 1980 -- I don't know. Whenever we -- the</p> <p>17 first ones were implanted. I was a -- one of the</p> <p>18 principal investigators on the Rashkin PDA.</p> <p>19 I implanted the first ones in the clinical</p> <p>20 trial. I became the -- the primary investigator when</p> <p>21 Rashkin died. But it -- and I think it's '81 or '82.</p> <p>22 But I --</p> <p>23 Q. Okay. What about the NMT CardioSEAL device?</p> <p>24 What time period did you implant that?</p> <p>25 A. Okay. It was a modification from the</p>	<p style="text-align: right;">Page 61</p> <p>1 A. Okay.</p> <p>2 Q. What kind of PFO did you use the standard</p> <p>3 technique to -- of the NMT CardioSEAL device?</p> <p>4 A. Let me give you an anatomy lesson.</p> <p>5 Q. Perfect.</p> <p>6 A. Patent foramen ovale is a potential opening.</p> <p>7 It's not in its normal state an opening. It's like a</p> <p>8 flap that is a hole and a flap over the hole.</p> <p>9 That flap can be a millimeter over the hole</p> <p>10 (indicating) extending past the hole, or</p> <p>11 2 centimeters past the hole.</p> <p>12 The -- this wasn't really recognized till the</p> <p>13 late '80s or late '90s, when we started closing them.</p> <p>14 Most -- most people's knowledge about the PFO</p> <p>15 was the pathologist at "necrop" say -- would put a</p> <p>16 probe through it and say, "Oh, there's a PFO."</p> <p>17 And we never paid any attention to the</p> <p>18 anatomy of it. When we started trying to close them</p> <p>19 with devices, then the anatomy became very important.</p> <p>20 So, the -- the usual, or probably 80 percent</p> <p>21 of PFOs, 90 percent, are barely overlapping. So,</p> <p>22 essentially you've got a straight shot through it.</p> <p>23 And that's perfect for the CardioSEAL device.</p> <p>24 The longer that flap overlaps, the less</p> <p>25 perfect it becomes, and it becomes impossible with a</p>

16 (Pages 58 to 61)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 62</p> <p>1 long-tunnel PFO.</p> <p>2 But you can overcome that by going</p> <p>3 transseptally puncturing through the flap of the</p> <p>4 membrane and putting your device through a straight</p> <p>5 hole. And then you get a nice smooth closure.</p> <p>6 Q. When does a PFO transition from being a usual</p> <p>7 PFO, so the 80 or 90 percent that you're talking</p> <p>8 about, to being what I think is referred to as a</p> <p>9 "long-tunnel PFO"?</p> <p>10 MR. ZAYED: Object to the form.</p> <p>11 A. It's not -- it's not either/or.</p> <p>12 Q. (BY MS. WANG) Okay.</p> <p>13 A. It's a spectrum, a transition. And it's a</p> <p>14 judgment when you think you can close it with a</p> <p>15 standard device, standard technique, versus some</p> <p>16 special technique or special device.</p> <p>17 Q. And in your experience and judgment, what was</p> <p>18 the length of the PFO that you felt comfortable</p> <p>19 closing a PFO with, with the standard NMT procedure?</p> <p>20 MR. ZAYED: Object to the form.</p> <p>21 Q. (BY MS. WANG) Do you understand the</p> <p>22 question?</p> <p>23 A. Yeah. I would -- I ballooned -- I angio'ed</p> <p>24 every defect PFO after the first -- second one, I</p> <p>25 encountered with a long tunnel.</p>	<p style="text-align: right;">Page 64</p> <p>1 A. Well, fluoroscopy is the active, ongoing</p> <p>2 angiocardigram. You -- if you're a quick enough</p> <p>3 eye, yeah.</p> <p>4 Q. Okay.</p> <p>5 A. But usually you take an angiocardigram so</p> <p>6 you can stop it and measure it.</p> <p>7 Q. Okay. So, is it correct to say that before</p> <p>8 you implant a transcatheter device, you know a</p> <p>9 specific measurement of the defect?</p> <p>10 A. Yes.</p> <p>11 Q. And is that true for the thickness of the</p> <p>12 septum as well?</p> <p>13 A. Well, the width -- the width of the tunnel.</p> <p>14 But the thickness of the tissues, you don't see, no.</p> <p>15 Q. Do you know the thickness of the tissues</p> <p>16 prior to implantation?</p> <p>17 A. Roughly --</p> <p>18 MR. ZAYED: Object to the form.</p> <p>19 A. -- by echocardiogram, you can see the</p> <p>20 thickness fairly well. I'm not an echo person.</p> <p>21 Q. (BY MS. WANG) Okay. Can you get a precise</p> <p>22 measurement of the thickness of the tissue prior to</p> <p>23 implantation?</p> <p>24 A. Prior. Precise, no.</p> <p>25 Q. So, I think you said that 80 to 90 percent of</p>
<p style="text-align: right;">Page 63</p> <p>1 I took an angiocardigram. Then I did a</p> <p>2 balloon sizing. And it depended on the</p> <p>3 characteristics of the balloon.</p> <p>4 If it ended up as an S-shape, then I didn't</p> <p>5 use a device in the standard technique. If had I put</p> <p>6 the balloon in and blew it up and it had a narrow</p> <p>7 waist and two nice balloons perpendicular, then it</p> <p>8 was like a straight shot.</p> <p>9 Q. So it was really more dependent on what the</p> <p>10 balloon --</p> <p>11 A. Yes.</p> <p>12 Q. -- presented as opposed to the length?</p> <p>13 A. Yeah.</p> <p>14 MR. ZAYED: Object to the form.</p> <p>15 Q. (BY MS. WANG) Is it correct to --</p> <p>16 A. A combination of both. I mean, if it's -- I</p> <p>17 do an angiocardigram and it's 2 centimeters long,</p> <p>18 there's no question.</p> <p>19 Q. Sure. In terms of an angiocardigram, can</p> <p>20 you get a precise measurement of the defect with an</p> <p>21 angio?</p> <p>22 A. Yes.</p> <p>23 Q. And can you get that same precise measurement</p> <p>24 with a fluoroscopy?</p> <p>25 MR. ZAYED: Object to the form.</p>	<p style="text-align: right;">Page 65</p> <p>1 PFOs are barely overlapping. And in your report, you</p> <p>2 said that they're about 2 to 3 millimeters; is that</p> <p>3 right?</p> <p>4 A. Yes.</p> <p>5 Q. What was the longest PFO you've seen?</p> <p>6 A. Slightly over 2 centimeters.</p> <p>7 Q. So, absolutely over 20 millimeters?</p> <p>8 A. Yes.</p> <p>9 Q. And did you use this special transeptal</p> <p>10 implantation method throughout our career until you</p> <p>11 retired?</p> <p>12 A. Yes.</p> <p>13 Q. When did you start using that procedure?</p> <p>14 MR. ZAYED: Object to the form.</p> <p>15 A. The transeptal?</p> <p>16 Q. (BY MS. WANG) Yes.</p> <p>17 A. 1962, maybe '61. And I developed the special</p> <p>18 sheath in '72, because I was comfortable with the</p> <p>19 technique.</p> <p>20 Q. Then I think you said that there came a time</p> <p>21 period where you started understanding the importance</p> <p>22 of the anatomy of the PFO to close it?</p> <p>23 A. Yes.</p> <p>24 Q. So, do you recall the first time that you</p> <p>25 implanted an NMT device transeptally to close a PFO?</p>

17 (Pages 62 to 65)

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3/6/2013

<p style="text-align: right;">Page 66</p> <p>1 A. 2002. It was after I tried to close it 2 without transeptal. 3 And then eight or ten hours later, after 4 getting that device out, then we closed it 5 transeptally. 6 Q. Then moving on to the NMT device, the 7 STARflex occluder -- 8 A. Right. 9 Q. -- what time period did you implant that? 10 A. Very near the end of my career. It just 11 became available. And I was on a STARflex protocol 12 for implanting and I don't think I ever used it for a 13 PFO, because I'm not sure it was ever FDA approved. 14 Q. Okay. 15 A. I think I used it -- it's a modification of 16 the CardioSEAL, kind of a minor modification. But it 17 supposedly helped self-center the device a little. 18 But it -- I don't think it ever got past the 19 investigational stage before NMT went out of 20 business, because they -- 21 Q. Okay. 22 A. I did not use it for PFOs. 23 Q. Okay. What about the Lock Clamshell ASD 24 device? What time period did you implant that? 25 A. Before the CardioSEAL. I mean, the -- the</p>	<p style="text-align: right;">Page 68</p> <p>1 Helex," you know. 2 I still was working with them. And we were 3 still on the ASD protocol, even though it was 4 approved for muscular VSDs. We were still trying to 5 get it approved for ASDs. 6 Q. I see. But during that time you worked with 7 NMT and you were loyal to them, you found the 8 device -- the devices to be effective, correct? 9 MR. ZAYED: Object to the form. 10 A. The -- which device? 11 Q. (BY MS. WANG) The NMT CardioSEAL occluder. 12 MR. ZAYED: Object to the form. 13 A. It was effective for smaller ASDs and very 14 effective for PFOs. 15 Q. (BY MS. WANG) And when you say it was "very 16 effective for PFOs," do you mean the -- the usual 80 17 to 90 percent of PFOs? 18 A. No, for all of them. It was -- I could use 19 it transeptally. And it -- so, I never went in to 20 close a PFO and didn't think I was going to be able 21 to close it because of the lack of device, with 22 the -- using the transeptal. 23 Q. Was there a time in your practice where both 24 the ASD device from AGA and the NMT CardioSEAL were 25 available?</p>
<p style="text-align: right;">Page 67</p> <p>1 CardioSEAL was a modification in materials and 2 modification in hinge points on the device. But the 3 CardioSEAL, it was the next generation of the 4 CardioSEAL -- of the Clamshell. 5 Q. I don't see on this list the Gore Helex 6 device. 7 Have you ever implanted the Gore Helex 8 device? 9 A. Only in animals. 10 Q. Was the Gore Helex device available prior to 11 your retirement? 12 A. I'm not sure. I think it was still -- I 13 mean, I think it was still under -- I'm sure it was 14 still investigational at that time. 15 So, you had to be on the protocol to use it 16 for closure. And I was kind of married to NMT and 17 those devices. 18 Q. And when you say you were "married to NMT and 19 those devices," what do you mean? 20 A. Well, I worked with the same people from the 21 Rashkin device in the '70s, on to the Clamshell, on 22 to the NMT. And I was kind of -- I had a loyalty to 23 them. 24 And I didn't drop them suddenly and say, 25 "Okay, I'll try the implants," or, "I'll try the</p>	<p style="text-align: right;">Page 69</p> <p>1 A. Yes. 2 Q. And in your medical practice, did you have 3 reason to choose between those two devices depending 4 on the patient? 5 MR. ZAYED: Object to the form. 6 A. Yes. 7 Q. (BY MS. WANG) And is it accurate to say that 8 the device you chose was based on what, in your 9 judgment, would be in the best interest of the 10 patient? 11 MR. ZAYED: Object to the form. 12 Dr. Mullins, at this point I'm going 13 to instruct you not to answer. 14 I'm going to move for a protective 15 order. This has nothing to do with his expert 16 report. 17 MS. WANG: This absolutely has 18 everything to do with his secondary considerations. 19 So, if you want to shut it down and 20 move for a protective order, that's fine. But it 21 absolutely has to do with the secondary 22 considerations. 23 MR. ZAYED: How so? 24 MS. WANG: So, in his secondary 25 considerations, he discusses the benefits of the 738</p>

18 (Pages 66 to 69)

CHARLES E. MULLINS, M.D.

3/6/2013

<p style="text-align: right;">Page 70</p> <p>1 claim features and selection.</p> <p>2 So, if you don't want him to testify</p> <p>3 about this and move for a protective order, you can.</p> <p>4 And I'll set out my basis. But --</p> <p>5 MR. ZAYED: I still don't see the</p> <p>6 basis of what you're asking him with respect to his</p> <p>7 experience with respect to the ASO and NMT. What</p> <p>8 what's -- I mean, what --</p> <p>9 MS. WANG: That's -- you know --</p> <p>10 MR. ZAYED: How --</p> <p>11 MS. WANG: I'm not going to set it out</p> <p>12 so you can coach your witness about how to testify.</p> <p>13 MR. ZAYED: Well, he can -- he could</p> <p>14 leave here in a minute and we could have a meet and</p> <p>15 confer.</p> <p>16 MS. WANG: That's fine. Let's go off</p> <p>17 the record.</p> <p>18 MR. ZAYED: No, we stay on the record.</p> <p>19 The meet and confer is on the record.</p> <p>20 MS. WANG: I'm not going to spend my</p> <p>21 time with Dr. Mullins on a meet and confer issue.</p> <p>22 I'm not, R.J. I don't think that's fair.</p> <p>23 So we can go off the record and meet</p> <p>24 and confer about this issue.</p> <p>25 MR. ZAYED: No, we're not going to</p>	<p style="text-align: right;">Page 72</p> <p>1 (The requested portion of the record</p> <p>2 was read by the court reporter.)</p> <p>3 A. Yes.</p> <p>4 Q. (BY MS. WANG) How -- over the years, how</p> <p>5 many NMT devices do you think you implanted?</p> <p>6 MR. ZAYED: Asked and answered.</p> <p>7 A. I don't know. Probably half of the ASDs that</p> <p>8 I closed.</p> <p>9 Q. (BY MS. WANG) I'm going to hand you what's</p> <p>10 being marked as Exhibit 290 to the deposition.</p> <p>11 (Exhibit 290 is marked.)</p> <p>12 Q. (BY MS. WANG) And I'm also going to hand you</p> <p>13 the book, just in case, but I didn't want to put the</p> <p>14 entire book and kill enough trees.</p> <p>15 A. What book is this?</p> <p>16 Q. It's your book, Dr. Mullins.</p> <p>17 A. Where in the world did this come from. I've</p> <p>18 never seen it in this binding or because they told me</p> <p>19 they quit -- they wouldn't redo it.</p> <p>20 Q. Can you identify Exhibit 290 for the record?</p> <p>21 A. Yes. It's some -- some copies of some</p> <p>22 diagrams that I published in a book.</p> <p>23 Q. And the book's name is, "Congenital Heart</p> <p>24 Disease: A Diagrammatic Atlas"; is that right?</p> <p>25 A. Right.</p>
<p style="text-align: right;">Page 71</p> <p>1 meet and confer. I'm just telling you that you're</p> <p>2 getting close to the line of where I'm going to</p> <p>3 instruct him not answer and I'm going move for a</p> <p>4 protective order and I'm not going to have any fights</p> <p>5 with you today.</p> <p>6 MS. WANG: That's fine.</p> <p>7 MR. ZAYED: The Court allows me to</p> <p>8 move for a protective order and instruct him not to</p> <p>9 answer. And that's how we're proceeding.</p> <p>10 MS. WANG: That's fine. Are you</p> <p>11 instructing him not answer now?</p> <p>12 MR. ZAYED: I'll allow the -- repeat</p> <p>13 the question.</p> <p>14 MS. WANG: Okay.</p> <p>15 MR. ZAYED: But you're way far afield.</p> <p>16 MS. WANG: Go ahead.</p> <p>17 MR. ZAYED: This is not a factual</p> <p>18 deposition, Counsel.</p> <p>19 MS. WANG: That's fine.</p> <p>20 THE REPORTER: Do you want me to read</p> <p>21 back the question?</p> <p>22 MS. WANG: Yes, please.</p> <p>23 THE WITNESS: You're going to have to</p> <p>24 repeat it because I don't remember what it was after</p> <p>25 that.</p>	<p style="text-align: right;">Page 73</p> <p>1 Q. Okay.</p> <p>2 A. This is just the index of it, I think, isn't</p> <p>3 it.</p> <p>4 Q. It's just the Table of Contents.</p> <p>5 A. Right.</p> <p>6 Q. So, I've handed you the entire book so you</p> <p>7 can see it --</p> <p>8 A. Right.</p> <p>9 Q. -- and you wanted to refer to it. But is the</p> <p>10 correct to say that Exhibit 3 of your deposition, in</p> <p>11 part, is pulled from this book?</p> <p>12 A. In part.</p> <p>13 Q. Okay. So, let's turn to Exhibit 3 of your</p> <p>14 report. And you can tell me what your images are</p> <p>15 from the book and aren't from the can book.</p> <p>16 So the first image, the Normal Heart, is that</p> <p>17 from the --</p> <p>18 A. Book.</p> <p>19 Q. -- the atlas?</p> <p>20 A. Yes.</p> <p>21 Q. And then the second image is Secundum ASD, is</p> <p>22 that also from the book?</p> <p>23 A. Yes.</p> <p>24 Q. And the third page, the small ASD is also</p> <p>25 from the book?</p>

19 (Pages 70 to 73)

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3/6/2013

<p style="text-align: right;">Page 74</p> <p>1 A. I'm not sure the book has the different 2 sizes. I would have to go back and look at it. 3 MR. ZAYED: The book is in front of 4 you, so -- 5 A. I know, but -- but the book is designed for 6 you to modify it. 7 Q. (BY MS. WANG) Okay. 8 A. Yeah. And I think the small ASD is probably 9 not in there. 10 Q. Okay. Well, you can take a look at the book, 11 if you would like. 12 A. Does that matter? 13 Q. Well, I guess my question is: Did you 14 specifically modify any images from the atlas to be 15 in Exhibit 3? 16 A. I think so. 17 Q. And can you tell me which ones you think -- 18 you believe that you modified? 19 A. I think the -- the small ASD and the 20 multi-fenestrated ASD are -- 21 MR. ZAYED: Would you refer by page 22 numbers of your exhibits such that we have a clear 23 record of what you're talking about? 24 A. Okay. Page 3 and 4. And there's no page 25 number. It should be 6 and 7, I think.</p>	<p style="text-align: right;">Page 76</p> <p>1 mean, every one is modified a little bit. 2 Q. So, the purpose of this book is really as a 3 tool to talk booth to other physicians, like 4 surgeons -- 5 A. Correct. 6 Q. -- as well as patients and patient's 7 parents -- 8 A. Correct. 9 Q. -- that you're consulting about a procedure? 10 A. Right. 11 Q. Was it well received? 12 A. Very well received. 13 Q. Is the still used today? 14 A. Yes. 15 Q. And is it used by physicians today? 16 A. Yes. It's unfortunately -- say, this is a 17 new -- new edition I wasn't aware of, because it was 18 originally loose -- loose-bound, roughly. And the 19 publishers had a great problem with my describing in 20 the front of it how to copy it. 21 Q. Right, right. Okay. 22 I wanted to ask you, you have Exhibit 290 in 23 front of you. 24 Is it electronically available at all, do you 25 know?</p>
<p style="text-align: right;">Page 75</p> <p>1 Q. (BY MS. WANG) Which images are you looking 2 at, Dr. Mullins? 3 A. Well, there's the long-tunnel PFO image. 4 Q. Okay. 5 A. And the specific of the long tunnel, it's 6 a -- it doesn't have a page number, but it follows 7 Page 5. So, it should be 6 and 7, I would guess. 8 Yeah -- well, the next ones are numbered. 9 And I think the PDAs, both of them have been 10 modified from a generic single PDA. Let's see if I 11 can find it. 12 Yeah, the -- probably both of the ASDs are 13 modified, because I've got one in the book, which is 14 Diagram 50, which is sort of in between. 15 The one in the book is a medium size. The 16 ones in the pictures are large and small. 17 Q. Okay. So, is the purpose of the book to be 18 able to modify the diagram based on a particular 19 patient's anatomy? 20 A. Exactly. 21 Q. Is that because anatomies of humans can vary, 22 even if they have the same defect? 23 A. Absolutely. The book has got 167 diagrams, 24 and I don't think I've ever used one unmodified in 25 talking to the surgeons or talking to the parents. I</p>	<p style="text-align: right;">Page 77</p> <p>1 A. I'm not sure. It might be through scientific 2 software solutions. I just I'm not sure whether it's 3 available. 4 I -- I did these on an old program when I 5 started modifying, which I don't think is even 6 available anymore. And I still use it to modify 7 them. 8 So, I'm -- if it's available electronically, 9 I'm not sure it's available so you can modify it 10 electronically. 11 Q. Were these diagrams used to assist physicians 12 in determining what septal occluders to use? 13 A. Probably not. I mean, it -- you know it's an 14 ASD, but this doesn't tell you the rims of the ASDs, 15 things of that sort. It -- it -- it assisted the 16 surgeons in not opening the wrong chamber of the 17 heart. 18 Q. Right. And when you say the "rims," you mean 19 the tissues that surround the duct? 20 A. Yes. 21 Q. I'm just going to ask you a quick question 22 about the page that's marked 11 in small Roman 23 numerals. Oh, it's in the -- I'm sorry, Exhibit 290. 24 And I just want to make sure I'm able to read the 25 diagrams correctly.</p>

20 (Pages 74 to 77)

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3/6/2013

<p style="text-align: right;">Page 78</p> <p>1 A. Okay, 11 is XI. Okay.</p> <p>2 Q. In Roman III --</p> <p>3 A. Are we on --</p> <p>4 Q. The top of the page says, "On the uses of the</p> <p>5 atlas."</p> <p>6 A. Okay. This page (indicating).</p> <p>7 Q. Yes.</p> <p>8 A. Yeah.</p> <p>9 Q. And Roman III, it says, "Right and left in</p> <p>10 reference to the chambers on the diagram refer to</p> <p>11 morphology, structure, or anatomy of the chamber, not</p> <p>12 to their function, not to their location, and not to</p> <p>13 their special relationships to each other."</p> <p>14 A. Correct.</p> <p>15 Q. Can you tell me what that means?</p> <p>16 A. Well, the heart can sit in the chest in any</p> <p>17 position. It may be sitting over here (indicating),</p> <p>18 in which case, the anatomic right ventricle can shift</p> <p>19 to the other side.</p> <p>20 Q. Okay.</p> <p>21 A. The heart also has conditions called sinus</p> <p>22 inversus or dextrocardia, where the chambers are --</p> <p>23 literally are reversed, anatomically reversed and</p> <p>24 physiologically reversed.</p> <p>25 So, when you're referring to the right</p>	<p style="text-align: right;">Page 80</p> <p>1 All right. Well, let's take a look -- now</p> <p>2 that I have sort of the background of these diagrams,</p> <p>3 if we could take a look at what's starting on Page 12</p> <p>4 of your report, which is the background of the</p> <p>5 defects.</p> <p>6 A. All right.</p> <p>7 Q. So, before we get into that, I'm going to ask</p> <p>8 you a few questions about the section above it, which</p> <p>9 is entitled, "Person of Ordinary Skill in the Art."</p> <p>10 And you can take the time to read it, if you</p> <p>11 would like.</p> <p>12 A. Okay.</p> <p>13 (The witness peruses the document.)</p> <p>14 A. Okay.</p> <p>15 Q. (BY MS. WANG) So, did you have a role in</p> <p>16 drafting or deciding what a person of ordinary skill</p> <p>17 in the art would be --</p> <p>18 A. Yes, definitely.</p> <p>19 Q. -- in writing this report?</p> <p>20 And I want to walk through the differences of</p> <p>21 a person of ordinary skill in the art --</p> <p>22 A. All right.</p> <p>23 Q. -- and just have you tell me why they're</p> <p>24 important.</p> <p>25 A. All right.</p>
<p style="text-align: right;">Page 79</p> <p>1 atrium, even though it's on the left side of the</p> <p>2 diagram, left side of the heart, it's still the right</p> <p>3 atrium.</p> <p>4 Q. Okay. So, now I'm looking at a page that</p> <p>5 looks different than the other diagrams --</p> <p>6 A. Correct.</p> <p>7 Q. -- of Exhibit 3. And it's this long-tunnel</p> <p>8 PFO page --</p> <p>9 A. Correct.</p> <p>10 Q. -- that doesn't have a page number.</p> <p>11 I think this image comes from your other</p> <p>12 book; is that correct?</p> <p>13 A. Book, yes.</p> <p>14 Q. And that other book is, "Cardiac</p> <p>15 Catheterization in Congenital Heart Disease."</p> <p>16 A. Correct.</p> <p>17 Q. Is that a book that you wrote yourself?</p> <p>18 A. Yes.</p> <p>19 Q. You're the only author on this book?</p> <p>20 A. Yes.</p> <p>21 Q. Did you write this entire book yourself?</p> <p>22 A. Yes. And typed it.</p> <p>23 Q. That's quite a feat?</p> <p>24 A. It took a few years.</p> <p>25 Q. Or maybe 45.</p>	<p style="text-align: right;">Page 81</p> <p>1 Q. So, the first thing you say is: It's your</p> <p>2 opinion in the field of technology of the '738 patent</p> <p>3 that a person of ordinary skill in the art would be a</p> <p>4 medical doctor with a focus on pediatric cardiac</p> <p>5 catheterization and experience testing and using</p> <p>6 transcatheter medical devices for closure of heart</p> <p>7 defects.</p> <p>8 Why is that important?</p> <p>9 A. If you don't understand the defect, how could</p> <p>10 you possibly design a device to close it. You have</p> <p>11 to know not only that it's an a hole, but what it's</p> <p>12 made of, what's the surrounding tissue, how do you</p> <p>13 get to it. So, you have to have the background.</p> <p>14 And I emphasize a pediatric cardiac</p> <p>15 catheterization person because the adult</p> <p>16 cardiologists deal with coronaries and generally</p> <p>17 don't deal with anything within the heart.</p> <p>18 Q. When you say they deal with coronaries and</p> <p>19 don't deal with anything in the heart, what do you</p> <p>20 mean?</p> <p>21 A. Well, the adult cardiologist in the 21st</p> <p>22 century and the end of the 20th was trained to do</p> <p>23 coronary angiography, coronary angioplasty, coronary</p> <p>24 stents, an occasional valve problem. But the</p> <p>25 majority of it is coronary disease.</p>

21 (Pages 78 to 81)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 82</p> <p>1 And they get into practice and they don't</p> <p>2 know their way around inside of the heart if they're</p> <p>3 doing a catheterization where the catheter goes into</p> <p>4 the chambers.</p> <p>5 Q. Okay.</p> <p>6 A. And they don't appreciate the anatomy and</p> <p>7 little nuances of the anatomy.</p> <p>8 Q. So, that focus on pediatric catheterization</p> <p>9 is really a shorthand way for you to say that the</p> <p>10 person of ordinary skill in the art has to have</p> <p>11 experience with the interior of the heart; is that</p> <p>12 right?</p> <p>13 A. Yes.</p> <p>14 MR. ZAYED: Object to form, the</p> <p>15 document speaks for itself.</p> <p>16 You're mischaracterizing the document.</p> <p>17 Q. (BY MS. WANG) Then it says: A person of</p> <p>18 ordinary skill that I've defined would have</p> <p>19 experience in nonsurgical transcatheter closure of</p> <p>20 defects in the atrial septum, including atrial septal</p> <p>21 defects and ASDs and patent foramen ovale, PFOs, and</p> <p>22 would be familiar with the surgical closure of heart</p> <p>23 defects.</p> <p>24 Is that important for the same reasons we've</p> <p>25 just talked about?</p>	<p style="text-align: right;">Page 84</p> <p>1 angiographs without being a medical doctor?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 A. I suppose if you trained specifically in that</p> <p>4 and spent a couple of years looking at angios with</p> <p>5 somebody instructing you, you could do it without</p> <p>6 being an MD.</p> <p>7 But I think it's part of your training in</p> <p>8 cardiology, certainly, so you learn that</p> <p>9 instinctively.</p> <p>10 Q. But it would take specialized training to be</p> <p>11 able to read the angiographs?</p> <p>12 A. Yes.</p> <p>13 Q. So I'm going to ask you about that the</p> <p>14 angiographs because I don't have that specialized</p> <p>15 training.</p> <p>16 A. All right.</p> <p>17 Q. And just interpreting them.</p> <p>18 So, you have a number of angiographs as</p> <p>19 Exhibit 4 to the deposition.</p> <p>20 A. Okay.</p> <p>21 Q. And when you get there, just let me know.</p> <p>22 A. I'm there.</p> <p>23 Q. So, just taking it one by one, because I'm</p> <p>24 not a medical doctor, if you look at Exhibit 4, the</p> <p>25 first image?</p>
<p style="text-align: right;">Page 83</p> <p>1 MR. ZAYED: Object to form.</p> <p>2 A. Yes.</p> <p>3 Q. (BY MS. WANG) And then you say: This person</p> <p>4 would not necessarily have an engineering background</p> <p>5 him or herself, but would be capable of consulting or</p> <p>6 working with mechanical and biomedical or materials</p> <p>7 science engineer who has experience working with</p> <p>8 medically compatible materials, including nitinol.</p> <p>9 Why is that important?</p> <p>10 A. I don't think most physicians -- I mean, the</p> <p>11 lucky ones trained as an engineering background. But</p> <p>12 most physicians did not.</p> <p>13 And the physician doesn't generally know one</p> <p>14 metal from another, the stresses on the metals, how</p> <p>15 small you can make them, how large, where you need</p> <p>16 the engineer, who you can direct to, "Okay, I need a</p> <p>17 device that's this big, that folds up to this big.</p> <p>18 Can you make that?"</p> <p>19 So, you have to have that -- the access to</p> <p>20 that knowledge to develop your final device.</p> <p>21 Q. Okay. Would it be important for a person of</p> <p>22 ordinary skill in the art to be able to read the</p> <p>23 angiographs that you talked about?</p> <p>24 A. Of course.</p> <p>25 Q. And would you be able to read those</p>	<p style="text-align: right;">Page 85</p> <p>1 A. Right.</p> <p>2 MR. ZAYED: Can I interrupt you just</p> <p>3 for just a second and just have him mark each page as</p> <p>4 1 through 3, so we know what --</p> <p>5 MS. WANG: That's fine. They're just</p> <p>6 on page.</p> <p>7 MR. ZAYED: Yeah, I know.</p> <p>8 Q. (BY MS. WANG) So let's mark that first one</p> <p>9 as Exhibit 4, Page 1.</p> <p>10 A. Okay.</p> <p>11 Q. So on Page 1 of the document, can you just</p> <p>12 tell me what I'm looking at there?</p> <p>13 A. This is a side view of the -- of the PFO.</p> <p>14 Q. Okay.</p> <p>15 A. And the fat part at the bottom is the</p> <p>16 entrance into the tunnel.</p> <p>17 Q. Okay.</p> <p>18 A. The skinny part is the constrictive length of</p> <p>19 the tunnel. And then the large part at the top is</p> <p>20 the contrast flowing into the left atrium.</p> <p>21 Q. Okay. Are -- why is it taken from a side</p> <p>22 view?</p> <p>23 A. If you put it face-on, you're going to get a</p> <p>24 big wide glob. I think there are a couple of face-on</p> <p>25 ones in here, but this -- this cuts the septum on</p>

22 (Pages 82 to 85)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 86</p> <p>1 edge so you can see the anatomy of that tunnel. If I</p> <p>2 have a -- a narrow tunnel like this (indicating), but</p> <p>3 it's broad and flat, and I turn it this way</p> <p>4 (indicating), you're looking at a very large glob.</p> <p>5 Q. I see. So, you call that an on-edge view; is</p> <p>6 that right?</p> <p>7 A. This is a lateral or an LAO. I think it's an</p> <p>8 LAO view, left anterior oblique.</p> <p>9 Q. Okay. And then -- so, I think what you said</p> <p>10 was that it was a long-tunnel PFO?</p> <p>11 A. Yes.</p> <p>12 Q. Can you tell from this image how long the</p> <p>13 tunnel is?</p> <p>14 A. With this copy of it, I don't think so. But</p> <p>15 usually we use a -- it's called a "marker catheter"</p> <p>16 that has 1-centimeter marks.</p> <p>17 And so, from that, you can -- you can</p> <p>18 calibrate it.</p> <p>19 I say, I can't see it in this. And in fact,</p> <p>20 this is probably after we've already measured it</p> <p>21 because the other structure in there is the</p> <p>22 transeptal needle.</p> <p>23 Q. And is that the structure that's --</p> <p>24 A. Straight.</p> <p>25 Q. -- sort of coming through?</p>	<p style="text-align: right;">Page 88</p> <p>1 A. Yes.</p> <p>2 Q. Now, looking at the next one, which will be</p> <p>3 Exhibit 4, Page 3 --</p> <p>4 A. 3.</p> <p>5 Q. -- what am I looking at there?</p> <p>6 A. This is a balloon expanded in the tunnel.</p> <p>7 And you see the waist on the balloon is --</p> <p>8 corresponds to that long narrow portion.</p> <p>9 So, even though with the angiocardioqram it's</p> <p>10 flat and thin -- and this is blown up with very</p> <p>11 little pressure. So this is giving me the exact</p> <p>12 anatomy of where it's enlarged and where it's thin.</p> <p>13 And I think, actually, you can -- no, there</p> <p>14 are markers on the balloon, but I don't see them.</p> <p>15 Q. So, I -- that was what I was going to ask</p> <p>16 you. I see some dots on this image.</p> <p>17 A. Yeah.</p> <p>18 Q. But that isn't referring to the same dots --</p> <p>19 A. The two -- the two that are out to the side,</p> <p>20 those are the measuring dots --</p> <p>21 Q. Okay.</p> <p>22 A. -- that are on the fluoroscopic screen, and</p> <p>23 those are 4 centimeters apart.</p> <p>24 So, from those, you can calibrate the length</p> <p>25 of the tunnel, or the width of it.</p>
<p style="text-align: right;">Page 87</p> <p>1 A. Yes.</p> <p>2 Q. And when you say it's the transeptal needle,</p> <p>3 it's that needle that you use to puncture the septal</p> <p>4 wall?</p> <p>5 A. Correct.</p> <p>6 Q. Is this image from your own personal files?</p> <p>7 A. Yes.</p> <p>8 Q. Do you recall what device you used?</p> <p>9 A. CardioSEAL.</p> <p>10 Q. Now, looking at this next image, which will</p> <p>11 be Exhibit 4, Page 2 --</p> <p>12 A. Right.</p> <p>13 Q. -- can you tell me what I'm looking at there?</p> <p>14 A. It's again a long tunnel, but this one is</p> <p>15 after the CardioSEAL is displayed. You see the --</p> <p>16 the sort of eccentric little dots (indicating),</p> <p>17 scattered around.</p> <p>18 Not the two big round -- or bigger round</p> <p>19 ones, but those eccentrics, those are the tips of the</p> <p>20 four legs of the CardioSEAL --</p> <p>21 Q. Okay.</p> <p>22 A. -- open on the left side of the device, after</p> <p>23 the transeptal puncture.</p> <p>24 Q. And we're still looking at it on the lateral</p> <p>25 view?</p>	<p style="text-align: right;">Page 89</p> <p>1 But usually within the -- within the balloon</p> <p>2 there are dots which you can barely see in these</p> <p>3 copies.</p> <p>4 Q. But the dots do not indicate that a device</p> <p>5 has already been implanted?</p> <p>6 A. No, no, not these. Only the -- those</p> <p>7 scattered ones I showed before.</p> <p>8 Q. That's right.</p> <p>9 Looking at the next image, Exhibit 4, Page 4,</p> <p>10 is that just a different example of a balloon</p> <p>11 catheter sizing the PFO?</p> <p>12 A. Correct. And there, you can see the catheter</p> <p>13 marks. You see the two lines --</p> <p>14 Q. Yes.</p> <p>15 A. -- right in the center the balloon</p> <p>16 (indicating)?</p> <p>17 Q. So, does that tell you --</p> <p>18 A. That's 1-centimeter in length.</p> <p>19 Q. Okay.</p> <p>20 A. And this one does not have an angiogram at</p> <p>21 the same time, but in the angio where it spills out</p> <p>22 of the top of the tunnel and where it spills at the</p> <p>23 bottom, this is just showing you the -- the size, the</p> <p>24 width of it.</p> <p>25 Q. Okay. So, exhibits 4, Page 1 and 2, are</p>

23 (Pages 86 to 89)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 90</p> <p>1 angiograms.</p> <p>2 And then what are Exhibits 3 and 4 -- I'm</p> <p>3 sorry, Page 3 and 4 of Exhibit 4?</p> <p>4 A. 3, 4, and 5, are all balloons in a tunnel.</p> <p>5 Q. Okay.</p> <p>6 A. It's a balloon that has contrast in it that's</p> <p>7 expanded in the tunnel.</p> <p>8 And this -- the -- the Page 5 one shows,</p> <p>9 again, the eccentric, the bulge coming out of the top</p> <p>10 and the bottom at a good distance apart.</p> <p>11 Q. And then what about Page 6?</p> <p>12 A. 6 is also a balloon, which unfortunately,</p> <p>13 again, is not very well produced.</p> <p>14 I think there was an angiogram at the</p> <p>15 same time, but it's -- all of the contrast is down at</p> <p>16 the proximal. It's not going through the tunnel.</p> <p>17 Q. Uh-huh. Now, I'm going to turn your</p> <p>18 attention to Page 7 and 8 of Exhibit 4.</p> <p>19 A. Okay.</p> <p>20 Q. What am I looking at there?</p> <p>21 A. 7 is a front-on view of contrast injected in</p> <p>22 the tunnel. And you see that long finger-like</p> <p>23 length.</p> <p>24 And you have to remember, these are</p> <p>25 individual frames of pictures taken at 30 frames a</p>	<p style="text-align: right;">Page 92</p> <p>1 patient. But it's -- it's four different patients --</p> <p>2 Q. Okay.</p> <p>3 A. -- out of 16 I have a collection of.</p> <p>4 Q. Okay. Was it your greatest hits?</p> <p>5 A. What? No, my worst nightmares.</p> <p>6 Q. Oh, no. Okay.</p> <p>7 So, looking at page marked -- Exhibit 4, Page</p> <p>8 8 --</p> <p>9 A. Okay.</p> <p>10 Q. -- on -- what am I seeing there?</p> <p>11 A. Again, a lateral view, side view, an</p> <p>12 injection of contrast directly in the tunnel, that</p> <p>13 very long, thin part.</p> <p>14 And from the two reference marks, which are 4</p> <p>15 centimeters, it probably 2 centimeters long.</p> <p>16 Q. And then, Pages 9 and 10 of Exhibit 4.</p> <p>17 A. Okay. 9 is again an angio in a long tunnel</p> <p>18 in the lateral view, and apparently a very fat</p> <p>19 patient.</p> <p>20 Q. And then, what about 10?</p> <p>21 A. And 10 is, again -- that may be -- no, that</p> <p>22 could be the same patient. But it's, again, a</p> <p>23 lateral view of a tunnel. Because I took these all</p> <p>24 from four -- four patients.</p> <p>25 Q. Okay.</p>
<p style="text-align: right;">Page 91</p> <p>1 second.</p> <p>2 Q. Okay.</p> <p>3 A. So, this is trying to cut just one frame, the</p> <p>4 best I could -- you don't see the flow of it going</p> <p>5 through.</p> <p>6 Q. But it's correct to say that these --</p> <p>7 although they're cuts from moving pictures --</p> <p>8 A. Yes.</p> <p>9 Q. -- they're not from the same series of</p> <p>10 pictures?</p> <p>11 A. Correct.</p> <p>12 MR. ZAYED: I'm sorry. Would you</p> <p>13 repeat that question?</p> <p>14 A. Some are the balloons --</p> <p>15 MR. ZAYED: Wait a minute, Doctor.</p> <p>16 Just a moment.</p> <p>17 (The requested portion of the record</p> <p>18 was read by the court reporter.)</p> <p>19 Q. (BY MS. WANG) I just -- I just wanted to</p> <p>20 make sure that all these pictures are not from the</p> <p>21 same --</p> <p>22 A. Same patient.</p> <p>23 Q. -- same picture?</p> <p>24 A. No, these -- these -- some of the balloon</p> <p>25 pictures may be the same patient, as the angio alone</p>	<p style="text-align: right;">Page 93</p> <p>1 A. I didn't put all 16.</p> <p>2 I made copies of angios for talks, for</p> <p>3 instruction, for teaching people. And I happened to</p> <p>4 have filled my computer with them.</p> <p>5 Q. No, that's fine. I just wanted to understand</p> <p>6 what they were.</p> <p>7 So, I see most of these are from the lateral</p> <p>8 view and then there's one from the --</p> <p>9 A. Frontal.</p> <p>10 Q. -- front view, or an on-front view; is that</p> <p>11 right?</p> <p>12 A. Right.</p> <p>13 Q. And the angiogram, is that happening while</p> <p>14 you're implanting the device?</p> <p>15 A. Usually it's just before and just after. But</p> <p>16 I have some that are not included where I did inject</p> <p>17 when I -- the device partially open to make sure it</p> <p>18 was in the right position.</p> <p>19 Q. Okay. And then, are there other</p> <p>20 visualization techniques that you use while you're</p> <p>21 actually implanting the device?</p> <p>22 A. You can use echocardiogram. I think did one</p> <p>23 of these -- the transesophageal echo, yeah.</p> <p>24 In the first one, you see the transesophageal</p> <p>25 echo probe in there. And that is also a help. I</p>

24 (Pages 90 to 93)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 94</p> <p>1 generally rely on the angio and the fluoroscopy, but 2 I'm old-fashioned. 3 Q. And would you be able to implant a device 4 only using the lateral view of the angio? 5 MR. ZAYED: Object to form. 6 A. I would probably be able to, but I wouldn't 7 do it. 8 Q. (BY MS. WANG) Okay. 9 A. I mean, now all the X-ray equipment has the 10 capability of rotating the tube. So if I had only 11 one tube direction, I would switch back and forth, 12 but I wouldn't come back to that lab. 13 Q. Okay. And would you be able to implant a 14 device only with a front view? 15 A. You -- you need both views. 16 Q. Okay. 17 A. I think -- yeah, if I want to be cavalier 18 and, you know -- but I would rotate the patient 19 before I would do it only in the front view. 20 Q. Okay. 21 A. That's another big difference between adult 22 and pediatric cardiology. They generally only have 23 one view in the adult lab. And they rely on rapid 24 rotation. 25 Q. Okay.</p>	<p style="text-align: right;">Page 96</p> <p>1 septum? 2 MR. ZAYED: Object to form. 3 A. In general, yeah. I think, though, you can 4 have defects that are up next to the aorta and have 5 no rim above or a very, very thin rim. 6 So, it usually is thin around the rim of the 7 defect, regardless of where the defect is. 8 Q. (BY MS. WANG) Do you use different devices, 9 depending on where the defect is seated in the 10 septum? 11 A. Different sizes. We don't have a big variety 12 of the devices. 13 Q. Okay. 14 A. So, you know, to use CardioSEAL when it was 15 available and AGA when it was available. 16 Q. Then it says: Some patients need to be 17 treated with an -- for an ASD with multiple holes, 18 often referred to as multi-fenestrated ASDs. 19 A. Correct. 20 Q. Has that also been called sort of a "Swiss 21 cheese" defect? 22 A. Or cribriform. 23 Q. Or cribriform. 24 How common are cribriforms versus just 25 regular ASDs?</p>
<p style="text-align: right;">Page 95</p> <p>1 A. Where we need the three-dimensional. 2 Q. Okay. I'm going to take you back to Page 12, 3 which is your section about "Background of Heart 4 Defects." 5 And did you draft this section? 6 A. Yes. 7 Q. And we've talked about a lot of these before, 8 so I just want to make sure that I have the 9 understanding -- background understanding before I 10 ask you additional questions. 11 We've talked about at atrial septal defect, 12 which is basically a hole in the atrial septum is 13 that correct? 14 A. Yes. 15 Q. And then, how thick is the atrial septal 16 tissue? 17 A. It varies. Up near the rim of the edges of 18 the septum, it could be merely 3, 4, maybe 5 19 millimeters. At the center of the septum, it varies 20 down to 1 millimeter in the intact septum. 21 Generally when there's a defect, it will be 22 maybe 2 millimeters at the edge of the defect. 23 Q. Okay. So, is it accurate to say that the 24 thickness of the defect or the thickness of the 25 tissue varies, depending on where it's placed in the</p>	<p style="text-align: right;">Page 97</p> <p>1 A. Very, very uncommon. I don't know, 2 2 percent, 3 percent. 3 Q. And surgery remains an option for both the 4 ASD and the cribriform defects? 5 A. Yes. 6 Q. In some cases, is it the only option? 7 MR. ZAYED: Object to form. 8 A. A very large ASD would maybe be the only 9 option, or eccentrically located in the septum would 10 be the only option, if it's very inferior or very 11 posterior. 12 Q. (BY MS. WANG) And I think you also mentioned 13 that there's -- the next section is the "Ventricular 14 Septal Defect." 15 A. Correct. 16 Q. Did you explain to me with a VSD is? 17 A. It's a whole between the two chambers, 18 between the right ventricle and left ventricle. And 19 I've simplified it a great deal, but they're in 20 infinite variety. 21 But the perimembranous are up immediately 22 under the aortic valve and it's where the ventricular 23 septum naturally gets narrow. And I guess it just 24 gets too narrow and leaves a defect. 25 The other big one that we're addressing are</p>

25 (Pages 94 to 97)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 98</p> <p>1 the muscular defects. And they're down in the 2 pumping muscle body of the defect. 3 They're not close to the aortic valve. They 4 do sometimes involves the tricuspid and microvalves 5 that go into the heart. 6 There's also an inflow VSD and other types 7 that we're not treating with devices, so we don't 8 mention them in here. 9 Q. Okay. So, is it accurate to say, then, that 10 like the atrial septal tissue, the thickness of the 11 ventricular septal tissue also changes depending on 12 the location of the defect? 13 A. It -- it doesn't -- 14 MR. ZAYED: Object to form -- 15 A. -- it doesn't change very much. 16 Q. (BY MS. WANG) Okay. 17 A. The -- the right ventricle has what's called 18 "thick trabeculation." So it doesn't have a smooth 19 wall. It's like looking at a crisscross of tissue. 20 Q. Okay. 21 A. And the hole is sort of almost like it's 22 punched through there. So it usually has a thick 23 membrane, a thick wall, in the muscular defects. 24 The top part of the perimembranous defect has 25 no rim. I mean, essentially no rim, where the bottom</p>	<p style="text-align: right;">Page 100</p> <p>1 Q. Exhibit 3 on Page 6, where you talk about the 2 muscular VSD -- 3 A. Correct. 4 MR. ZAYED: I'm sorry. Where are you? 5 MS. WANG: Exhibit 3, Page 6. 6 A. There is no 6. Where am I? 7 MR. ZAYED: Will you again -- 8 MS. WANG: I think they're out of 9 order, but I think they were actually produced this 10 way. 11 MR. ZAYED: I think it's out of order. 12 Would you mind if he numbered it? 13 THE WITNESS: We've got it. I've got 14 6 here. There's no 5. 15 MR. ZAYED: The numbers, I notice, are 16 out of whack. And so, for us to have a clear record, 17 you know -- 18 MS. WANG: I think it would probably 19 be just more accurate if we just kept the numbers on 20 the page and referred to them, because I think 21 you guys -- 22 THE WITNESS: Yeah, this is labeled 6. 23 MS. WANG: Can we just do it that way? 24 MR. ZAYED: We produced it. But if 25 you read it, it goes 1, 2, 3, 4, 6, 7, 5 -</p>
<p style="text-align: right;">Page 99</p> <p>1 part is thicker. It's like resting on them. 2 Q. Uh-huh. 3 A. So, there are a lot of different variations 4 in thickness in the ventricular defect. 5 Q. Okay. Do you have a range of thicknesses? 6 A. I have not sat down and measured the range. 7 But probably between 1 1/2 centimeters thick, in the 8 thickest muscular defect, to 8 millimeters, 6 or 8 9 millimeters thick. 10 Q. And it's possible for a defect to have both a 11 thin rim and a thick rim? 12 A. The perimembranous defect. The -- it sits 13 very high in the septum, right under the aortic 14 valve. 15 Really, it's a thin rim of tissue under the 16 aortic valve. And yet, at the bottom of it, it's 17 down into the muscle of the defect. 18 Q. Okay. Can -- can -- can a VSD have a tunnel? 19 A. It -- it -- you know, a centimeter and a half 20 is -- maybe qualifies as a tunnel. 21 Q. Okay. And can a VSD be angled in any way? 22 A. Yes. 23 Q. Now, if I look at the -- I'm going to take 24 you back to Exhibit 3, which are those diagrams. 25 A. Okay.</p>	<p style="text-align: right;">Page 101</p> <p>1 THE WITNESS: Right. 2 MS. WANG: Right. 3 MR. ZAYED: -- blank, blank 8, 9. 4 MS. WANG: Yeah. And I'm okay -- I 5 think it might be just easier because I think the 6 exhibit might be used in other depositions, and so I 7 just don't want to get it cattywampus, if that's 8 okay. 9 So we can -- if there's a page that 10 doesn't have a number on it, we can number it. But 11 if the page already has a number on it, it seems 12 like -- I don't want to -- 13 MR. ZAYED: Fair enough. It's just -- 14 MS. WANG: -- make the record unclear 15 between different depositions. 16 MR. ZAYED: And I apologize for 17 producing it out of order. That wasn't my intent. 18 MS. WANG: No. 19 A. The two that are blank, I think we numbered 20 them 5 and 6, and there are already -- 21 Q. (BY MS. WANG) Right. So, I'm just going to 22 point you to what -- 23 A. The Muscular VSD, 6. 24 Q. -- the Muscular VSD which is labeled on the 25 diagram as a "Muscular VSD."</p>

26 (Pages 98 to 101)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 102</p> <p>1 So, is this just an example --</p> <p>2 A. Yes.</p> <p>3 Q. -- of a muscular VSD that you've created?</p> <p>4 A. The VSD could be along that septum anywhere.</p> <p>5 It could be larger. It could be smaller.</p> <p>6 Q. Okay.</p> <p>7 A. This happens to have a little piece of tissue</p> <p>8 in the middle, just showing another complication</p> <p>9 feature, but --</p> <p>10 Q. Sure. And is this passageway of the VSD</p> <p>11 angled?</p> <p>12 A. It's generally fairly perpendicular to the</p> <p>13 walls of the heart. But it can go -- say the -- the</p> <p>14 musculature of the right ventricle looks like this</p> <p>15 (indicating).</p> <p>16 And so, it may exit here or up here or up</p> <p>17 here or down here (indicating). So, from that</p> <p>18 standpoint, it could be angled in the exit.</p> <p>19 Q. Okay. In your practice and experience, did</p> <p>20 you use devices that were designed for ASDs to</p> <p>21 include VSDs?</p> <p>22 MR. ZAYED: Object to form.</p> <p>23 A. Muscular VSDs, yes.</p> <p>24 Q. (BY MS. WANG) And did you use -- did you use</p> <p>25 devices that were designed to occlude muscular VSDs</p>	<p style="text-align: right;">Page 104</p> <p>1 protocol, you can't use it off-label on something</p> <p>2 else.</p> <p>3 Q. Okay.</p> <p>4 A. You can only use it. But if it's on a</p> <p>5 protocol for ASDs and approved for VSDs, that</p> <p>6 approval for VSDs allows it to be used anywhere.</p> <p>7 Q. So, let me make sure I understand it, just</p> <p>8 because I'm not well-versed in what happens with the</p> <p>9 FDA.</p> <p>10 A. It doesn't make any sense, but go ahead.</p> <p>11 Q. Okay. So, the FDA proves the NMT CardioSEAL</p> <p>12 device to close VSDs?</p> <p>13 A. Right.</p> <p>14 Q. And then it was on a protocol with respect to</p> <p>15 closing ASDs?</p> <p>16 A. That is correct.</p> <p>17 Q. But you could then use it to close PFOs?</p> <p>18 A. On the basis of its human approval for VSDs.</p> <p>19 Q. Okay.</p> <p>20 A. The FDA is not supposed to practice medicine.</p> <p>21 And where it's used, once it's approved to be safe to</p> <p>22 be the human body, where it's used is up to the</p> <p>23 discretion of a physician.</p> <p>24 Q. And I think that you've previously testified</p> <p>25 in other cases that off-label use was very common?</p>
<p style="text-align: right;">Page 103</p> <p>1 to occlude ASDs?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 A. No.</p> <p>4 MR. ZAYED: Let me -- back up a</p> <p>5 second.</p> <p>6 I don't know, because when you say did</p> <p>7 you use musculars that had FDA approval? Did --</p> <p>8 MS. WANG: No, I was just saying in</p> <p>9 general.</p> <p>10 MR. ZAYED: Okay. Because the</p> <p>11 CardioSEAL was approved for VSD.</p> <p>12 MS. WANG: Right. Okay.</p> <p>13 MR. ZAYED: And that's my question, it</p> <p>14 was only approved for VSDs.</p> <p>15 MS. WANG: So let me re-ask the</p> <p>16 question to it's clear.</p> <p>17 Q. (BY MS. WANG) The CardioSEAL device was only</p> <p>18 approved for VSDs, correct?</p> <p>19 A. Correct. It was still in studies for ASDs.</p> <p>20 Q. But you used that muscular VSD device to</p> <p>21 occlude both ASDs and PFOs?</p> <p>22 A. On a protocol I used it to close ASDs.</p> <p>23 Q. And wasn't that the same device that you used</p> <p>24 in the transeptal puncture to close?</p> <p>25 A. Absolutely. Yeah, when -- when it's on a</p>	<p style="text-align: right;">Page 105</p> <p>1 MR. ZAYED: Object to form.</p> <p>2 A. It's -- it's extremely common.</p> <p>3 Q. (BY MS. WANG) So, then I think we've looked</p> <p>4 at and talked about PFOs. And you've explained that</p> <p>5 to me. So I think we can move ahead -- oh, I had one</p> <p>6 question about PFOs before we moved on.</p> <p>7 In the PFO section on Page 14, Section 3, I</p> <p>8 think you said: PFOs are thought to increase</p> <p>9 susceptibility to an increased risk of stroke or</p> <p>10 heart attacks.</p> <p>11 A. Correct.</p> <p>12 Q. Do you see that at the bottom? It's the</p> <p>13 second paragraph, under Section 3, on Page 14.</p> <p>14 A. Correct.</p> <p>15 Q. Are most of the PFOs that you've closed in</p> <p>16 children or adults?</p> <p>17 A. Adults.</p> <p>18 Q. And is that increase in risk in stroke just</p> <p>19 in adults?</p> <p>20 A. It's not limited to adults, but I mean, a</p> <p>21 child can right to left shunt and have a stroke.</p> <p>22 The heart functions better in children than</p> <p>23 it does in old people. And I think that's why it</p> <p>24 becomes more apparent in the adult.</p> <p>25 Q. Okay.</p>

27 (Pages 102 to 105)

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3/6/2013

<p style="text-align: right;">Page 106</p> <p>1 A. And the PFO has been there since birth.</p> <p>2 Q. Okay. But in terms of closing PFOs, those</p> <p>3 closures typically occur in adults?</p> <p>4 A. Adults, yes.</p> <p>5 Q. And is there a difference between the risk of</p> <p>6 stroke or heart attack for a regular PFO versus a</p> <p>7 long-tunnel PFO?</p> <p>8 MR. ZAYED: Object to form.</p> <p>9 A. I don't think there's any data on that as</p> <p>10 yet.</p> <p>11 Q. (BY MS. WANG) Okay. Do you have any</p> <p>12 experience in that?</p> <p>13 A. Well, I ended up as a referral source, as the</p> <p>14 first and only person doing ASDs and PFOs in the</p> <p>15 southwest.</p> <p>16 And when the PFOs, it became apparent there</p> <p>17 seemed to be a relation to stroke, I got a lot of</p> <p>18 referrals in adults.</p> <p>19 We didn't initially recognize that there was</p> <p>20 a big difference between closing them or anything,</p> <p>21 until the problems with trying to put the standard</p> <p>22 device in one of those tunnels.</p> <p>23 The tunnel fortunately is not common, but I</p> <p>24 think I got a disproportionate number sent to me.</p> <p>25 Q. Okay. We're going to have to switch tapes in</p>	<p style="text-align: right;">Page 108</p> <p>1 which is the PDA.</p> <p>2 What is a PDA?</p> <p>3 A. Patent ductus arteriosus. It is a</p> <p>4 communication between the main pulmonary artery and</p> <p>5 the aorta.</p> <p>6 It is an essential part of the circulation</p> <p>7 prior to birth and normally closes down</p> <p>8 spontaneously. Closes completely down.</p> <p>9 If it does not close down, then it leaves a</p> <p>10 communication from the high pressure aorta to the</p> <p>11 very low pressure pulmonary artery, which begins to</p> <p>12 flood the lungs and causes heart failure.</p> <p>13 Q. And have you ever used a ASD device to close</p> <p>14 a PDA?</p> <p>15 A. In extreme circumstance, yes.</p> <p>16 Q. And when was that?</p> <p>17 A. A 1 centimeter PDA and 1 centimeter in</p> <p>18 diameter in an older patient where the PDA devices we</p> <p>19 had at the time were a maximum 17 millimeters, and it</p> <p>20 popped through it.</p> <p>21 Q. Do you recall what device you used?</p> <p>22 A. CardioSEAL.</p> <p>23 Q. And then, have you ever used a PDA device to</p> <p>24 close an ASD?</p> <p>25 A. Before the Clamshells were invented, we had</p>
<p style="text-align: right;">Page 107</p> <p>1 a little bit. But I'm going to try to make sure I</p> <p>2 understand this.</p> <p>3 In terms of sort of the normal short overlap</p> <p>4 of PFOs, that overlap is about 1 to 2 millimeters; is</p> <p>5 that right?</p> <p>6 A. It can be from 1 to 20. But most of them are</p> <p>7 1, 2, 3 --</p> <p>8 Q. Okay.</p> <p>9 A. -- fairly short. And the tissue is very</p> <p>10 compliant. Particularly in the short ones.</p> <p>11 Q. Okay. Does the usual PFO share similarities</p> <p>12 in geometry to the ASD?</p> <p>13 A. No. It's -- it is a potential opening, not a</p> <p>14 true opening.</p> <p>15 Q. Okay. But they can be both treated with</p> <p>16 devices that are used to close ASDs?</p> <p>17 MR. ZAYED: Object to form.</p> <p>18 A. The short?</p> <p>19 Q. (BY MS. WANG) Right.</p> <p>20 A. The -- the more routine PFO, yeah.</p> <p>21 Q. Right.</p> <p>22 THE VIDEOGRAPHER: Five minutes on</p> <p>23 tape.</p> <p>24 MS. WANG: Sure.</p> <p>25 Q. (BY MS. WANG) Then there is the last area,</p>	<p style="text-align: right;">Page 109</p> <p>1 closed very small ASDs. And again, we probably would</p> <p>2 have used it to close PFOs, but weren't doing PFOs</p> <p>3 yet.</p> <p>4 MS. WANG: We have to take a break for</p> <p>5 the tape to get changed.</p> <p>6 THE VIDEOGRAPHER: The time is 10:52</p> <p>7 and we're off the record.</p> <p>8 (Break.)</p> <p>9 THE VIDEOGRAPHER: This is the</p> <p>10 beginning of tape No. 3 to the deposition of</p> <p>11 Dr. Mullins. The time is 11:06 and we're on the</p> <p>12 record.</p> <p>13 Q. (BY MS. WANG) Dr. Mullins, I'm going to hand</p> <p>14 you what will be marked as Exhibit 291, I believe,</p> <p>15 which is an excerpt of your book.</p> <p>16 (Exhibit 291 is marked.)</p> <p>17 Q. (BY MS. WANG) And I'm also handing you at</p> <p>18 the same time the entire book, in case you want to</p> <p>19 refer to it for something else.</p> <p>20 Dr. Mullins, can you identify Exhibit 291 for</p> <p>21 the record, please?</p> <p>22 A. This looks to be at least one chapter from --</p> <p>23 two chapters from my book on catheterization of heart</p> <p>24 disease.</p> <p>25 Q. To be clear, is this the book that's stated</p>

28 (Pages 106 to 109)

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3/6/2013

<p style="text-align: right;">Page 110</p> <p>1 in your CV that's attached to your report as</p> <p>2 Exhibit 1?</p> <p>3 A. Yes.</p> <p>4 Q. I think you've previously testified in this</p> <p>5 deposition that you wrote this entire book?</p> <p>6 A. That's correct.</p> <p>7 Q. And you wrote this book based on your 45</p> <p>8 years of experience as an interventional</p> <p>9 cardiologist?</p> <p>10 A. Correct.</p> <p>11 Q. To the best of your knowledge, is it</p> <p>12 accurate?</p> <p>13 A. To the best of my knowledge.</p> <p>14 Q. And you worked hard on making it accurate?</p> <p>15 A. Yes.</p> <p>16 Q. Have there been any additional editions of</p> <p>17 the book?</p> <p>18 A. No. And I refuse.</p> <p>19 Q. Have there been any supplementations to the</p> <p>20 book?</p> <p>21 A. No.</p> <p>22 Q. Have there been any changes to the book at</p> <p>23 all?</p> <p>24 A. Not since publication date.</p> <p>25 Q. Okay. Since the publication date of the</p>	<p style="text-align: right;">Page 112</p> <p>1 A. They referred to it. So I presume it's used</p> <p>2 there.</p> <p>3 Q. And did -- while you were a visiting</p> <p>4 professor there, did you use it?</p> <p>5 A. No.</p> <p>6 Q. I'm just going to have you turn to, I think,</p> <p>7 Page 781. It's the chapter on --</p> <p>8 A. PFO.</p> <p>9 Q. -- Patent Foramen Ovale and Fenestration</p> <p>10 Occlusions.</p> <p>11 A. Okay.</p> <p>12 Q. And it says, sort of in the middle of the</p> <p>13 first paragraph, under "Indications For Closure of</p> <p>14 the Patent Foramen Ovale": Closure of the PFO with a</p> <p>15 catheter-delivered device was documented to be</p> <p>16 feasible and safe in clinical trials of several</p> <p>17 catheter-delivered ASD devices in the early 1990s.</p> <p>18 Do you see that statement?</p> <p>19 A. Yes.</p> <p>20 Q. Is that an accurate statement?</p> <p>21 A. Pretty much so.</p> <p>22 Q. Do you know what device that was?</p> <p>23 A. It would have been the CardioSEAL.</p> <p>24 Q. And --</p> <p>25 A. Maybe the Clamshell, but predominantly</p>
<p style="text-align: right;">Page 111</p> <p>1 book, which I believe was 2006 --</p> <p>2 A. Yes.</p> <p>3 Q. -- have you -- has it come to your attention</p> <p>4 that anything about the book is inaccurate?</p> <p>5 MR. ZAYED: Object to form.</p> <p>6 A. Some of it is getting a little bit outdated,</p> <p>7 but not inaccurate.</p> <p>8 Q. (BY MS. WANG) What is the purpose of this</p> <p>9 text? What audience was it designed for?</p> <p>10 A. A very small audience, mostly pediatric</p> <p>11 cardiologists in training.</p> <p>12 Q. And when you say "pediatric cardiologists in</p> <p>13 training," what do you mean?</p> <p>14 A. Well, physicians who elected, after their</p> <p>15 pediatric training, to go into pediatric cardiology.</p> <p>16 And even more specifically, those who are going into</p> <p>17 cardiac catheterization.</p> <p>18 Q. Is it used in medical schools?</p> <p>19 A. Yes.</p> <p>20 Q. Are there specific medical schools that it's</p> <p>21 used in?</p> <p>22 A. I have no idea.</p> <p>23 Q. Okay. Do you know whether or not it's used</p> <p>24 in the curriculum of the University of Michigan where</p> <p>25 you were visiting?</p>	<p style="text-align: right;">Page 113</p> <p>1 CardioSEAL.</p> <p>2 Q. That raises a question of -- I think you said</p> <p>3 that the CardioSEAL was the next generation of the</p> <p>4 Clamshell?</p> <p>5 A. Clamshell, correct.</p> <p>6 Q. What changes occurred between the Clamshell</p> <p>7 and the CardioSEAL?</p> <p>8 A. The Clamshell, it -- it -- occurred later on</p> <p>9 after we had been implanting them for a couple of</p> <p>10 years, that there appeared fractures in the arms.</p> <p>11 It caused no clinical sequelae, but certainly</p> <p>12 got the attention of the investigators, and even more</p> <p>13 so the FDA. And so, the Clamshell was withdrawn.</p> <p>14 And the engineers -- well, the Clamshell was</p> <p>15 made by Bard, and it -- with that problem, and the</p> <p>16 problems they had with some other catheters, went out</p> <p>17 of the business.</p> <p>18 NMT acquired the rights to the device, and</p> <p>19 was building the device, and the NMT engineers</p> <p>20 figured out that the metal was probably a problem and</p> <p>21 the -- the lack of hinges on the arms was a problem,</p> <p>22 or the lack of enough hinges.</p> <p>23 So, they designed the device using the</p> <p>24 original -- CardioSEAL was stainless steel and the</p> <p>25 Clamshell was stainless steel. The CardioSEAL and</p>

29 (Pages 110 to 113)

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<p style="text-align: right;">Page 114</p> <p>1 STARflex were -- there's a special number, something, 2 MPN -- it's kind of an alloy of steel. 3 So, they changed the materials. They put an 4 extra hinge on the arms and made it more flexible and 5 eliminated the fractures. 6 Q. Okay. Turning to the next page, which is -- 7 I'm going to ask you to flip the page to 783. It 8 says, "Device Closure of the Patent Foramen Ovale." 9 A. Okay. 10 Q. The second sentence says: Virtually all the 11 devices used for occlusion of atrial septal defects 12 as well as several devices designed either 13 specifically for occlusion of the PFO or for the 14 occlusion of some other defects have been used for 15 occlusion of the patent foramen ovale as well as for 16 closures for surgical fenestrations in the "Fontan" 17 baffles. 18 Do you see that? 19 MR. ZAYED: Where are you 20 specifically? 21 MS. WANG: It's on Page 783 -- 22 THE WITNESS: 783. 23 MS. WANG: -- second sentence. 24 THE WITNESS: Right after "device 25 closure."</p>	<p style="text-align: right;">Page 116</p> <p>1 occlude that defect, because the Fontan baffle -- or 2 the hole in the fenestration in the Fontan baffle 3 acts like a PFO. It allows right to left shunting. 4 Q. Okay. 5 A. And so you could later on -- and it was 6 pretty much a discrete hole. 7 Q. Okay. I think you said previously that this 8 book has been used by a certain subset of 9 physicians -- 10 A. Yes. 11 Q. -- in training. 12 Is it also used by practicing pediatric 13 interventional cardiologists? 14 A. Yeah. 15 Q. And is it -- is it well-accepted by the 16 field? 17 A. I think so. 18 Q. Other than your book, obviously, are there 19 other textbooks in the field of pediatric 20 interventional cardiology that people generally turn 21 to? 22 A. I think Hijazi come up with a book since then 23 that's referred to. Mostly you refer to the 24 literature and the individual articles on specific 25 things.</p>
<p style="text-align: right;">Page 115</p> <p>1 MS. WANG: Are you there, Mr. Zayed? 2 MR. ZAYED: Yes, thank you. 3 Q. (BY MS. WANG) And that's an accurate 4 statement? 5 A. Yes. 6 Q. The -- the Fontan baffles, what is that, 7 Dr. Mullins? 8 A. Fontan is a correction for three-chambered 9 hearts, to bi-pass the right side of the heart 10 effectively. 11 And it's a channel created from the inferior 12 vena cava to the superior vena cava, attaching to the 13 pulmonary arteries. 14 So it's an infracardiac -- the baffle is an 15 infracardiac wall placed from the IVC to the SVC, to 16 divert the blood away. 17 Because these patients had a lot of problems 18 with fluid retention, prone to losing neuropathy and 19 other problems, we discovered that if you make a 20 little hole in it during their immediate recovery 21 period, that would vent some of the blood into the 22 rest of the body circulation. 23 It made the patients a little bit blue, but 24 then it allowed them to recover from the surgery. 25 And most of them then you could later on</p>	<p style="text-align: right;">Page 117</p> <p>1 Q. Have you heard of a book called "Moss & 2 Adams"? 3 A. It's -- I don't know what edition it's in. 4 I've got some chapters in it, I think. 5 Q. Right. And is that also relied upon by 6 pediatric interventional cardiologists in their 7 training? 8 MR. ZAYED: Object to form. 9 A. More so -- more so by the general pediatric 10 cardiology trainee to get a general idea about the -- 11 it doesn't go into the specific details of the 12 technique, which I tried to do in the book. 13 Q. (BY MS. WANG) Uh-huh. And so, one of the 14 objectives that you had in this book was to be more 15 detailed about the procedures and the devices? 16 A. Yes. 17 Q. And you said that you had previously had 18 chapter in Moss & Adams; is that right? 19 A. Yes. 20 Q. And just like with your books and your -- 21 your report, when you wrote a chapter for Moss & 22 Adams, you made sure it was accurate? 23 A. Tried to, yes. Each word in this book has 24 been revised at least 20 times. 25 Q. So it's pretty thorough; is that right?</p>

30 (Pages 114 to 117)

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3/6/2013

<p style="text-align: right;">Page 118</p> <p>1 A. I think it is.</p> <p>2 Q. I'm going to hand you what's being marked as</p> <p>3 Exhibit 292.</p> <p>4 (Exhibit 292 is marked.)</p> <p>5 MS. WANG: Can I have the book back</p> <p>6 just so court reporter can mark it correctly?</p> <p>7 (The witness complies.)</p> <p>8 Q. (BY MS. WANG) Dr. Mullins, do you recognize</p> <p>9 that document?</p> <p>10 A. I see my name on it, so I guess I should.</p> <p>11 But I don't remember it.</p> <p>12 Q. If I could have you -- I'll identify it for</p> <p>13 the record as the, "Substitute expert report of</p> <p>14 Dr. Charles E. Mullins regarding invalidity of the</p> <p>15 '281 patent."</p> <p>16 And it bears the Bates number AGA_GORE2006882</p> <p>17 to 2006941.</p> <p>18 If I could have you turn to the back page,</p> <p>19 which is AGA_GORE2006941. It's the very -- very back</p> <p>20 page in this one.</p> <p>21 A. 2- what?</p> <p>22 Q. It's 2006941, but it should be the very, very</p> <p>23 back page.</p> <p>24 A. Well --</p> <p>25 MR. ZAYED: No, it's --</p>	<p style="text-align: right;">Page 120</p> <p>1 Paragraph 46.</p> <p>2 A. Have you got a page?</p> <p>3 Q. It's Page 12. And it bears the Bates number</p> <p>4 AGA_GORE2006893.</p> <p>5 A. Page 12.</p> <p>6 Q. Yep.</p> <p>7 A. Okay.</p> <p>8 Q. In Paragraph 46.</p> <p>9 A. All right.</p> <p>10 Q. You say: Throughout the development history</p> <p>11 of heart defect closure devices, devices developed</p> <p>12 for the closure of PDAs were also used to treat</p> <p>13 septal defects such as ASDs and VSDs. Similarly,</p> <p>14 devices developed for closure have been used to close</p> <p>15 PDAs.</p> <p>16 And that's a correct statement?</p> <p>17 A. Correct.</p> <p>18 Q. And can you explain that to me?</p> <p>19 A. Well --</p> <p>20 MR. ZAYED: Object to form.</p> <p>21 And to the extent that you're asking</p> <p>22 about a previous report, I -- the report speaks for</p> <p>23 itself. He testified that he hasn't looked at it in</p> <p>24 a long time.</p> <p>25 You may ask him about his general</p>
<p style="text-align: right;">Page 119</p> <p>1 A. No, I have the 700's.</p> <p>2 MR. ZAYED: There's the whole CV</p> <p>3 that's attached to it.</p> <p>4 MS. WANG: Okay.</p> <p>5 MR. ZAYED: Here's Page 60</p> <p>6 (indicating).</p> <p>7 Q. (BY MS. WANG) Page 60. I apologize.</p> <p>8 A. Okay. 60.</p> <p>9 Q. So, I've given you the whole report so that</p> <p>10 you've had -- you would have access to it.</p> <p>11 A. All right.</p> <p>12 MR. ZAYED: He was on Page 60 of his</p> <p>13 CV.</p> <p>14 MS. WANG: Okay.</p> <p>15 A. Another 60.</p> <p>16 Q. (BY MS. WANG) This is an easy question.</p> <p>17 Is that your signature?</p> <p>18 A. Yes.</p> <p>19 Q. And you had an opportunity to review this</p> <p>20 report before you signed it?</p> <p>21 A. Long time ago, yes. Two years ago.</p> <p>22 Q. And to the -- to the best of your knowledge,</p> <p>23 it's truthful and accurate?</p> <p>24 A. Yes.</p> <p>25 Q. Now, I'm going to have you turn to</p>	<p style="text-align: right;">Page 121</p> <p>1 knowledge about that, but to ask him about what's</p> <p>2 contained in the report and what's meant in the</p> <p>3 report, I object to that. This is not a deposition</p> <p>4 in that case.</p> <p>5 MS. WANG: That's fine.</p> <p>6 A. Well, I think we already talked about it a</p> <p>7 little bit.</p> <p>8 But we had the PDA device available. And</p> <p>9 people got humanitarian exemption use while it was in</p> <p>10 a study to use it for VSD, small VSD, or for a small</p> <p>11 ASD.</p> <p>12 And vice versa, when we got devices for VSD,</p> <p>13 Clamshell in particular, that was used in ASDs and</p> <p>14 for very large PDAs.</p> <p>15 Q. Okay. I'm going to have you look at</p> <p>16 Paragraph 49, which is on the next page. And it</p> <p>17 says: By January 21st, 1992, the prior art was</p> <p>18 extensive and wide-ranging. A number of devices and</p> <p>19 methods for nonsurgical closure of heart defects,</p> <p>20 including septal defects, had been designed,</p> <p>21 developed, and tested. These devices included</p> <p>22 various centering mechanisms and many types of</p> <p>23 "self-expanding" disks or umbrellas.</p> <p>24 Is that an accurate statement?</p> <p>25 A. Yes. This is including Europe and not just</p>

31 (Pages 118 to 121)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 122</p> <p>1 the States.</p> <p>2 Q. Okay. Can you explain to me what you mean by</p> <p>3 "these devices included various centering</p> <p>4 mechanisms"?</p> <p>5 MR. ZAYED: Again, same objection.</p> <p>6 A. The CardioSEAL device was modified with some</p> <p>7 little wire springs going from one -- one arm of one</p> <p>8 umbrella, through the defect, to the arm of the other</p> <p>9 umbrella.</p> <p>10 And there were four of these around the</p> <p>11 device, which helped self-center it.</p> <p>12 The Das device came up with a suture ring in</p> <p>13 the middle, which once it was totally deployed,</p> <p>14 centered it over the defect.</p> <p>15 Those are the two primary examples. They</p> <p>16 were European. And I don't remember the names of all</p> <p>17 of them, but had some different mechanisms to help</p> <p>18 center them.</p> <p>19 Q. Okay. So, there were differences in the</p> <p>20 waist of the devices? Is that right?</p> <p>21 MR. ZAYED: Object to form.</p> <p>22 A. There was a difference in the waist of the</p> <p>23 Das device, not a difference in the waist of the --</p> <p>24 of the STARflex device.</p> <p>25 Q. (BY MS. WANG) Okay. And then it says:</p>	<p style="text-align: right;">Page 124</p> <p>1 A. What's the difference between these two</p> <p>2 (indicating)? Pardon me. Don't they have the same</p> <p>3 thing?</p> <p>4 Q. (BY MS. WANG) They're -- just for record,</p> <p>5 for you, Dr. Mullins, there -- there were two reports</p> <p>6 in that case. So, I just brought both of them.</p> <p>7 A. This has the same number and everything. Are</p> <p>8 you sure I don't have two of the exact same thing?</p> <p>9 Q. Yes. There was one report, the first one</p> <p>10 that I handed you --</p> <p>11 A. Yeah.</p> <p>12 Q. -- was a substitute report. And then I've</p> <p>13 just handed you the original opening report.</p> <p>14 A. All right.</p> <p>15 Q. So, for the record, Exhibit 293 is the</p> <p>16 opening report of Dr. Charles E. Mullins regarding</p> <p>17 invalidity of the '291 and the '281 patents. And it</p> <p>18 bears the Bates number AGA_GORE2006580 to AGA_GORE</p> <p>19 2006723.</p> <p>20 So, Dr. Mullins, if you could turn to</p> <p>21 Paragraph 120, which is on Page 48, which bears the</p> <p>22 Bates number AGA_GORE2006631.</p> <p>23 A. Okay.</p> <p>24 Q. And Paragraph 120, the second sentence, you</p> <p>25 said: In 1992, doctors seeking to develop</p>
<p style="text-align: right;">Page 123</p> <p>1 There were many different types of self-expanding</p> <p>2 disks for umbrellas.</p> <p>3 What did you mean by that?</p> <p>4 MR. ZAYED: Same objections.</p> <p>5 A. Well, the devices in the States were very</p> <p>6 limited. But in Europe, there was SoluSEAL --</p> <p>7 SoluSEAL -- I don't remember the names of all of</p> <p>8 them.</p> <p>9 But there were probably a half a dozen</p> <p>10 different devices that appeared in the European</p> <p>11 market and -- either in trials or some of them</p> <p>12 approved, which never even came to the United States.</p> <p>13 Q. Okay. I'm going to hand you what's being</p> <p>14 marked as Exhibit 293 to the deposition.</p> <p>15 (Exhibit 293 is marked.)</p> <p>16 Q. (BY MS. WANG) And again, I've copied the</p> <p>17 entire report, just so you have it and you can refer</p> <p>18 to whatever you need to. But we're going to look at</p> <p>19 something specific.</p> <p>20 A. We're done with that one (indicating)?</p> <p>21 Q. Yeah.</p> <p>22 MR. ZAYED: I would like to designate</p> <p>23 the entire questioning concerning Exhibit 292 and 293</p> <p>24 as outside attorneys' eyes only. It pertains to a</p> <p>25 different case involving a different party.</p>	<p style="text-align: right;">Page 125</p> <p>1 transcatheter devices did not start from scratch, but</p> <p>2 rather, borrowed from existing technology for</p> <p>3 traditional closure of septal defects.</p> <p>4 Do you see that statement?</p> <p>5 A. Yes.</p> <p>6 Q. And that's accurate?</p> <p>7 A. Yes.</p> <p>8 Q. And what did you mean by "rather borrowed</p> <p>9 from existing technology for traditional closure of</p> <p>10 septal defects"?</p> <p>11 A. Well, the original defects were all</p> <p>12 umbrellas. And most of the subsequent defects --</p> <p>13 devices for defect closure were also some form of</p> <p>14 umbrella, as the occluding mechanism.</p> <p>15 So, they weren't -- so, you're borrowing the</p> <p>16 umbrella technique and then maybe a different way to</p> <p>17 attach it or a different covering on it or a</p> <p>18 combinations that way.</p> <p>19 Q. I see.</p> <p>20 A. And I -- not official borrow. I mean, that's</p> <p>21 their thinking of, "This umbrella works better, but</p> <p>22 it doesn't center, so we will put something else in</p> <p>23 that will make it center," and so forth.</p> <p>24 Q. So, your thought process was really device</p> <p>25 designers aren't starting from scratch, but they're</p>

32 (Pages 122 to 125)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 126</p> <p>1 looking at devices available in the field to get</p> <p>2 ideas about how to make an improved device?</p> <p>3 MR. ZAYED: Object to form.</p> <p>4 A. In some cases. I think some cases, they've</p> <p>5 got an idea of their own.</p> <p>6 And it -- I mean, some of them were so</p> <p>7 different that it doesn't -- it's not a change from</p> <p>8 the others. But many of them were modifications of</p> <p>9 prior ones.</p> <p>10 Q. (BY MS. WANG) Okay. I'm going to turn back</p> <p>11 to your report.</p> <p>12 A. Which report?</p> <p>13 Q. That's a great question, Dr. Mullins. I'm</p> <p>14 going to have you turn back to Exhibit 289, which is</p> <p>15 your report in this case.</p> <p>16 A. Okay.</p> <p>17 Q. And the section that's called "Legal</p> <p>18 Standards," and it's on Page 7.</p> <p>19 A. Going back. Okay.</p> <p>20 Q. So, looking at the standard that's -- I'm</p> <p>21 sorry, the section that's entitled "Legal Standards,"</p> <p>22 I'm just going to ask you some general questions.</p> <p>23 But you should feel free to read the section if you</p> <p>24 would like to.</p> <p>25 Dr. Mullins, I'm assuming that you're not a</p>	<p style="text-align: right;">Page 128</p> <p>1 report, Section C.</p> <p>2 A. All right.</p> <p>3 Q. And Section C is entitled, "The Invention</p> <p>4 State For the Asserted Claims is No Later Than March</p> <p>5 27th, 1997."</p> <p>6 A. Correct.</p> <p>7 Q. So, I think we've just gone over the fact</p> <p>8 that AGA's counsel provided you the legal principles</p> <p>9 to apply for that section?</p> <p>10 A. Yes.</p> <p>11 Q. And any factual things that you considered</p> <p>12 are they reflected in your report on Page 15,</p> <p>13 Section C?</p> <p>14 A. I think so, yes.</p> <p>15 Q. And there's nothing else other than what's</p> <p>16 reflected on Page 15 that you considered or relied</p> <p>17 on?</p> <p>18 A. I don't believe so.</p> <p>19 Q. Now, I'm going to have you turn back to</p> <p>20 Page 10, which is "The Court's Claim Construction."</p> <p>21 A. Okay.</p> <p>22 Q. What's your understanding of what a claim</p> <p>23 construction is?</p> <p>24 A. The Court's definition of statements.</p> <p>25 Sometimes they're very different than the usual</p>
<p style="text-align: right;">Page 127</p> <p>1 lawyer?</p> <p>2 A. Definitely not.</p> <p>3 Q. And you don't have any specialized knowledge</p> <p>4 in patent law?</p> <p>5 A. No.</p> <p>6 Q. You're an inventor on some patents; is that</p> <p>7 correct?</p> <p>8 A. Unfortunately, not on a patent.</p> <p>9 Q. Okay. So, you don't have any specialized</p> <p>10 experience with patenting?</p> <p>11 A. No.</p> <p>12 Q. You relied upon AGA's attorney to supply you</p> <p>13 with the correct legal opinion -- or legal principles</p> <p>14 to apply to your work here?</p> <p>15 A. Yes.</p> <p>16 Q. And you didn't rely on any legal principles</p> <p>17 that aren't reflected in your report, did you?</p> <p>18 MR. ZAYED: Object to form.</p> <p>19 A. No.</p> <p>20 Q. (BY MS. WANG) And you didn't develop or</p> <p>21 research any legal principles that you applied on</p> <p>22 your own?</p> <p>23 A. This is bad enough.</p> <p>24 Q. I'm going to have you turn quickly back to</p> <p>25 the -- or forward, I'm sorry, to Page 15 of the</p>	<p style="text-align: right;">Page 129</p> <p>1 definition, but the Court defines it and you have to</p> <p>2 go by that definition.</p> <p>3 Q. So, in rendering your expert opinions in the</p> <p>4 case, did you apply these -- The Court's Claim</p> <p>5 Constructions, or the definitions, where the Court</p> <p>6 determined the meaning of the term for the patents?</p> <p>7 A. I think the Court didn't really make any</p> <p>8 specific claims here. But I think so, yes.</p> <p>9 Q. Okay. So, where the Court defined a term,</p> <p>10 you applied that definition?</p> <p>11 A. To the best of my ability, yeah.</p> <p>12 Q. Okay. And then, there are certain cases in</p> <p>13 which the Court didn't define the term, but said it</p> <p>14 was plain and ordinary meaning.</p> <p>15 A. Right.</p> <p>16 Q. In those cases, you understood that you were</p> <p>17 to apply your understanding as a person of ordinary</p> <p>18 skill in the art at the time of the invention of the</p> <p>19 '738 patent?</p> <p>20 A. Right.</p> <p>21 Q. And you did that faithfully?</p> <p>22 A. I think so.</p> <p>23 Q. In any of the -- the terms that you applied</p> <p>24 plain and ordinary meaning about, did you consult</p> <p>25 with Dr. Armstrong about what that plain and ordinary</p>

33 (Pages 126 to 129)

CHARLES E. MULLINS, M.D.
3/6/2013

Page 130	Page 132
<p>1 meaning was?</p> <p>2 A. No, no.</p> <p>3 Q. And in any of the terms that you applied</p> <p>4 plain and ordinary meaning to, did you consult with</p> <p>5 Dr. Bhattacharya about any of those meanings?</p> <p>6 A. No.</p> <p>7 Q. And how about in any of the terms that you</p> <p>8 applied plain and ordinary meaning, did you consult</p> <p>9 with anyone else about --</p> <p>10 A. No.</p> <p>11 Q. -- what you thought those terms meant?</p> <p>12 A. No.</p> <p>13 Q. So, I'm going to hand you what will be marked</p> <p>14 Exhibit 294 to the deposition.</p> <p>15 (Exhibit 294 is marked.)</p> <p>16 Q. (BY MS. WANG) Do you recognize what's been</p> <p>17 marked as Exhibit 294?</p> <p>18 A. Yes.</p> <p>19 Q. And can you --</p> <p>20 A. '738 patent.</p> <p>21 Q. And can you identify it for the record,</p> <p>22 please?</p> <p>23 A. It's the patent for the particular PFO</p> <p>24 device, the '738, the 5944738 patent.</p> <p>25 Q. And is it your understanding that this is the</p>	<p>1 medical device as being part of both the central</p> <p>2 portion and the enlarged diameter portion."</p> <p>3 Do you see that?</p> <p>4 A. Yes -- I don't see it, but I remember.</p> <p>5 MR. ZAYED: It's on the first, I</p> <p>6 think --</p> <p>7 Q. (BY MS. WANG) It's on Page 10.</p> <p>8 A. Look at 10.</p> <p>9 Q. The bottom.</p> <p>10 A. Yeah.</p> <p>11 Q. And to the best of your ability, you applied</p> <p>12 that principle faithfully?</p> <p>13 A. Yes.</p> <p>14 Q. And then it says, further down: I agree with</p> <p>15 Dr. Javois that "lateral movement" of each of the</p> <p>16 claimed --</p> <p>17 A. Okay.</p> <p>18 Q. -- two enlarged diameter portions with</p> <p>19 respect to each means that the disks move relative to</p> <p>20 each other as depicted in Figure 12 of the patent.</p> <p>21 A. Okay. I think so.</p> <p>22 MR. ZAYED: Now, Dr. Mullins, I would</p> <p>23 like you to review the materials and -- before</p> <p>24 answering the questions.</p> <p>25 A. It's better depicted in some others. But,</p>
Page 131	Page 133
<p>1 patent that's in suit in this litigation?</p> <p>2 A. Yes.</p> <p>3 Q. And do you understand that AGA Medical has</p> <p>4 asserted that Gore -- Gore's Helix device infringes</p> <p>5 claims 23 and 30 of this patent?</p> <p>6 A. Yes.</p> <p>7 Q. And do you understand that claims 23 and 30</p> <p>8 depend off claim 20?</p> <p>9 A. Yes.</p> <p>10 Q. Other than claims 20, 23, and 30, are you</p> <p>11 here today to talk about terms that appear somewhere</p> <p>12 else in this patent?</p> <p>13 A. No.</p> <p>14 Q. So, looking back at your report that's --</p> <p>15 that has the section, "The Court's Claim</p> <p>16 Construction"?</p> <p>17 A. Okay. Page 10?</p> <p>18 Q. Yes.</p> <p>19 You have a statement at the bottom of page --</p> <p>20 or it's the second paragraph that says: I also</p> <p>21 understand that the parties agreed in their Joint</p> <p>22 Claim Construction Statement that "the central</p> <p>23 portion does not include either enlarged diameter</p> <p>24 portion, which is intended only to ensure that</p> <p>25 neither party can claim the exact same section of the</p>	<p>1 yeah.</p> <p>2 Q. Okay. So, does Figure 12 show lateral</p> <p>3 movement, in your opinion?</p> <p>4 A. Impossible lateral movement, but, yes.</p> <p>5 Q. And then does -- and then looking at the</p> <p>6 "Brief Description of the Drawings," which is on --</p> <p>7 in column 4 of the patent --</p> <p>8 A. Okay.</p> <p>9 Q. -- the description of Figure 12 is a partial</p> <p>10 sectional side view elevation -- I'm sorry. I'll</p> <p>11 read that correctly: Figure 12 is a partial</p> <p>12 sectional side elevational view of embodiment of</p> <p>13 Figure 8 shown occluding a PFO of the septal wall.</p> <p>14 Do you see that description?</p> <p>15 A. Correct.</p> <p>16 Q. And that was your understanding of what was</p> <p>17 depicted in Figure 12 as lateral movement?</p> <p>18 A. Yes.</p> <p>19 Q. So, would lateral movement also be the</p> <p>20 movement of a device from that offset position to a</p> <p>21 more perpendicular position?</p> <p>22 MR. ZAYED: Object to form.</p> <p>23 Q. (BY MS. WANG) Do you understand my question?</p> <p>24 A. It would be lateral movement from the</p> <p>25 previous offset to that, yes.</p>

34 (Pages 130 to 133)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 134</p> <p>1 Q. Okay. So, just looking at the figures of the</p> <p>2 patent for benefit, if you look at Figure 12 of the</p> <p>3 patent --</p> <p>4 A. Yes.</p> <p>5 Q. -- that shows lateral offset.</p> <p>6 And then you look at Figure 8 of the</p> <p>7 patent --</p> <p>8 A. Yes.</p> <p>9 Q. -- if you moved from Figure 12 to Figure 8,</p> <p>10 would that also be lateral movement?</p> <p>11 MR. ZAYED: Object to form.</p> <p>12 A. It would be lateral movement if it was</p> <p>13 possible, but I don't think it would be possible.</p> <p>14 Q. (BY MS. WANG) Okay. When you say you don't</p> <p>15 think it would be possible, what do you mean?</p> <p>16 A. Well, you have a cylindrical central section,</p> <p>17 and a cylinder, per se, prevents lateral movement.</p> <p>18 Q. Okay.</p> <p>19 A. Particularly a broad cylinder of this sort,</p> <p>20 where to -- to obtain lateral movement -- and I'm</p> <p>21 talking about lateral movement, not a little wiggle</p> <p>22 of the device.</p> <p>23 But -- but I think this whole thing is</p> <p>24 dependent on the closure of the long tunnel. So,</p> <p>25 lateral movement of a centimeter or a centimeter and</p>	<p style="text-align: right;">Page 136</p> <p>1 patent.</p> <p>2 A. I think it was meant only for long PFOs.</p> <p>3 Q. (BY MS. WANG) So, when you interpreted this</p> <p>4 patent and applied the prior art to it, you went from</p> <p>5 the perspective that the invention disclosed in the</p> <p>6 '738 patent was limited to long PFOs?</p> <p>7 MR. ZAYED: Object to form.</p> <p>8 A. Not limited, but designed for long PFOs.</p> <p>9 Q. (BY MS. WANG) Oh, you know what, can I make</p> <p>10 one correction on the record?</p> <p>11 A. Yeah.</p> <p>12 Q. The '738 patent was previously marked as</p> <p>13 Exhibit 101 to Gu. So, it probably is cleaner if we</p> <p>14 just use Exhibit 101, instead of marking multiple</p> <p>15 patents.</p> <p>16 A. So, do we change the number or --</p> <p>17 Q. The number will change to Exhibit 101.</p> <p>18</p> <p>19 MS. WANG: So, let's take a quick</p> <p>20 break and I'll correct this.</p> <p>21 THE VIDEOGRAPHER: The time is 11:43</p> <p>22 and we're off the record.</p> <p>23 (Lunch break.)</p> <p>24 THE VIDEOGRAPHER: The time is 12:37,</p> <p>25 and we're on the record.</p>
<p style="text-align: right;">Page 135</p> <p>1 a half.</p> <p>2 And with a cylindrical central portion, I</p> <p>3 don't think you can develop lateral movement, no</p> <p>4 matter what the material is.</p> <p>5 Q. Okay. So, when you were considering and</p> <p>6 applying in your report what lateral movement was,</p> <p>7 were you applying a movement of 1 centimeter?</p> <p>8 MR. ZAYED: Object to form.</p> <p>9 A. I was applying more than a wiggle, yes.</p> <p>10 Q. (BY MS. WANG) And when you say "more than a</p> <p>11 wiggle," what do you mean?</p> <p>12 A. A millimeter, 2 millimeters. That's not</p> <p>13 lateral movement. And I was applying it in relation</p> <p>14 to what we're trying to correct.</p> <p>15 Q. Did you interpret the '738 patent, as a</p> <p>16 person of ordinary skill in the art, to be limited to</p> <p>17 long-tunnel PFOs?</p> <p>18 MR. ZAYED: Object to form.</p> <p>19 A. One -- one design of it would be only long</p> <p>20 PFOs, yes.</p> <p>21 Q. (BY MS. WANG) But the entire patent isn't</p> <p>22 only limited to long-tunnel PFOs?</p> <p>23 MR. ZAYED: Object to form.</p> <p>24 The patent speaks for itself. He's</p> <p>25 not here to render an opinion as to the scope of the</p>	<p style="text-align: right;">Page 137</p> <p>1 Q. (BY MS. WANG) Welcome back, Dr. Mullins.</p> <p>2 You understand that you're still under oath?</p> <p>3 A. Yes, of course.</p> <p>4 Q. So, before we adjourned for lunch, we were</p> <p>5 talking about The Court's Claim Construction, and</p> <p>6 your interpretation of certain terms in the patents</p> <p>7 in suit of -- from the perspective of a person in the</p> <p>8 ordinary skill of the art.</p> <p>9 And we were talking about lateral movement.</p> <p>10 We were looking at Figure 12 of the patent.</p> <p>11 Now, Figure 12 is described as a: Partial</p> <p>12 sectional side elevational view of the embodiment of</p> <p>13 Figure 8 shown occluding the PFO of the septal wall.</p> <p>14 Do you see that?</p> <p>15 A. Yes.</p> <p>16 Q. And in that depiction, in Figure 12, is -- is</p> <p>17 that a long-tunnel PFO?</p> <p>18 MR. ZAYED: Object to form.</p> <p>19 A. I wouldn't consider that a long tunnel.</p> <p>20 Q. (BY MS. WANG) Okay. I'm going to hand you</p> <p>21 what's been marked as Exhibit 294.</p> <p>22 (Exhibit 294 is remarked.)</p> <p>23 Q. (BY MS. WANG) And for the record, I'll tell</p> <p>24 you that this is --</p> <p>25 A. Lock.</p>

35 (Pages 134 to 137)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 138</p> <p>1 Q. Yes, that's right, Figure 9 of Lock.</p> <p>2 Dr. Mullins, does Figure 9 of Lock depict</p> <p>3 lateral movement, under your definition?</p> <p>4 MR. ZAYED: Object to form. I also</p> <p>5 object to pulling out one figure of an entire patent.</p> <p>6 It's out of context.</p> <p>7 I would ask that the entire patent be</p> <p>8 produced.</p> <p>9 MS. WANG: That's fine.</p> <p>10 Will you grab the patent so</p> <p>11 Dr. Mullins can have it?</p> <p>12 THE WITNESS: Can I comment while</p> <p>13 we're waiting?</p> <p>14 MR. ZAYED: There's a question pending</p> <p>15 with my objections.</p> <p>16 Q. (BY MS. WANG) I hand you what's been marked</p> <p>17 as Exhibit 295, which is the entirety of the Lock</p> <p>18 patent.</p> <p>19 (Exhibit 295 is marked.)</p> <p>20 Q. (BY MS. WANG) So, Dr. Mullins, I think my</p> <p>21 question, before your counsel asked -- or AGA's</p> <p>22 counsel asked that I provide the entire patent to</p> <p>23 you, was: Does Figure 9 of the Lock patent depict</p> <p>24 lateral movement?</p> <p>25 A. Yes.</p>	<p style="text-align: right;">Page 140</p> <p>1 that allows lateral movement of the two enlarged</p> <p>2 diameter portions with respect to each other.</p> <p>3 Do you shall?</p> <p>4 A. Yes.</p> <p>5 Q. I'm sure you're well-versed in that language.</p> <p>6 Using the Figure 294, can you circle what you</p> <p>7 consider to be the central portion?</p> <p>8 A. Central portion of what?</p> <p>9 Q. The device of 294.</p> <p>10 MR. ZAYED: Object to form.</p> <p>11 Dr. Mullins -- Dr. Mullins, stop.</p> <p>12 Gore took the position in this case of</p> <p>13 not allowing the witness to mark anything. I was at</p> <p>14 two depositions in which we requested that it be</p> <p>15 marked.</p> <p>16 Gore took the position that they're</p> <p>17 not there to produce -- make evidence in a case, in</p> <p>18 marking.</p> <p>19 And so I'm going to insist that the</p> <p>20 same be maintained here. I'm following Gore's</p> <p>21 example in this case, in which they refused to allow</p> <p>22 a witness to mark any documents.</p> <p>23 So, do not mark anything, Dr. Mullins.</p> <p>24 MS. WANG: Okay.</p> <p>25 MR. ZAYED: You can testify as to</p>
<p style="text-align: right;">Page 139</p> <p>1 Q. Does Figure 9 of the Lock patent depict a</p> <p>2 long-tunnel PFO?</p> <p>3 MR. ZAYED: Object to form.</p> <p>4 A. I would call it a relatively short tunnel.</p> <p>5 Q. (BY MS. WANG) Looking back at the exhibit</p> <p>6 that's been previously marked as Gu 101, which is the</p> <p>7 '738 patent, anywhere in the figures of the '738</p> <p>8 patent do you see a long-tunnel PFO depicted?</p> <p>9 A. Let me look again, but I don't think so.</p> <p>10 I -- not depicted in the figures.</p> <p>11 Q. So, we're going to start looking at the</p> <p>12 specific terms of the patents in suit.</p> <p>13 But if you could take Exhibit 291, I think</p> <p>14 one of the points of the claim terms of the patents</p> <p>15 is that --</p> <p>16 A. Which is 291? Is that mine?</p> <p>17 Q. I'm sorry, 294, which is the -- just the</p> <p>18 figure.</p> <p>19 A. Okay.</p> <p>20 Q. And, Dr. Mullins, I'm going to hand you a</p> <p>21 green pen.</p> <p>22 A. All right.</p> <p>23 Q. So: Claims 23 and 30 that are asserted</p> <p>24 against Gore in this case depend off of claim 20,</p> <p>25 which, in part, requires a flexible central portion</p>	<p style="text-align: right;">Page 141</p> <p>1 that.</p> <p>2 MS. WANG: Okay. Just let me just be</p> <p>3 clear, because I don't think I was at those</p> <p>4 depositions.</p> <p>5 Which depositions were those,</p> <p>6 Mr. Zayed?</p> <p>7 MR. ZAYED: Those were the depositions</p> <p>8 of the initial Gore witnesses, their 30(b)(6)</p> <p>9 witness; their witness, David Williams. About three</p> <p>10 different witnesses in which Gore refused to allow</p> <p>11 AGA to request that the witnesses mark the documents.</p> <p>12 So I'm going to insist on the same</p> <p>13 protocol for my witnesses.</p> <p>14 MS. WANG: Okay. So you're</p> <p>15 instructing -- I'm just trying to make a clear</p> <p>16 record, Mr. Zayed.</p> <p>17 So, you're instructing the witness not</p> <p>18 to make any marks on the exhibits; is that correct?</p> <p>19 MR. ZAYED: That's correct. I'm -- as</p> <p>20 Gore indicated, the witness is not here to create</p> <p>21 evidence for the other side.</p> <p>22 And so, I'm using the same protocol</p> <p>23 that Gore used with respect to the witnesses that we</p> <p>24 were questioning in this case.</p> <p>25 MS. WANG: Okay. But I can ask him to</p>

36 (Pages 138 to 141)

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3/6/2013

<p style="text-align: right;">Page 142</p> <p>1 describe things based on the exhibits; is that 2 correct?</p> <p>3 MR. ZAYED: Absolutely. 4 MS. WANG: Okay.</p> <p>5 Q. (BY MS. WANG) So, using your words, 6 Dr. Mullins, and looking at Exhibit 294, can you 7 identify for me where on 294 is the central portion 8 of the device?</p> <p>9 MR. ZAYED: Object to form. 10 A. From point 88 -- well, 88 to 88.</p> <p>11 Q. (BY MS. WANG) 88 to 88. So, in defining the 12 central portion of this device, you don't include the 13 portions labeled 82 and 84?</p> <p>14 MR. ZAYED: Object to form. 15 Q. (BY MS. WANG) Is that correct?</p> <p>16 A. I can't be quite sure what those are. But I 17 think they're just loops. And I think they're loops 18 fixed solidly to the disks. So, no.</p> <p>19 Q. Now, going back to your definition of lateral 20 movement, I think you said that when you applied the 21 term "lateral movement" in this -- in your opinion, 22 and in this report, you didn't include any lateral 23 movement that you considered just a wiggle?</p> <p>24 A. That's correct. 25 Q. But in your report, you didn't put -- put any</p>	<p style="text-align: right;">Page 144</p> <p>1 narrower than the top -- another part?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 Q. (BY MS. WANG) I'm trying just to understand 4 what your definition of splaying is.</p> <p>5 A. Yes. With distortion of the two disks, yes. 6 Q. Okay. So let me hand you what's going to be 7 marked as Exhibit 296.</p> <p>8 (Exhibit 296 is marked.)</p> <p>9 Q. (BY MS. WANG) Which is also a figure from 10 the Lock patent. And is this -- does this figure 11 depict what you would interpret as splaying?</p> <p>12 A. Yes. 13 Q. Now, again, looking at this device depicted 14 in figure 10, in Exhibit 296, what portion of this 15 device would you identify as the central portion?</p> <p>16 MR. ZAYED: Object to form. 17 A. Well, I can't be sure exactly what 132 and 18 122 -- I think they're a loop.</p> <p>19 MR. ZAYED: Dr. Mullins, before you 20 start speculating, Figure 10, and there's a 21 discussion of Figure 10 in the Lock patent. And I 22 would ask you to review that before you answer.</p> <p>23 You're being provided a figure from a 24 patent with specific numbers on it and you're 25 entitled to know what those numbers on.</p>
<p style="text-align: right;">Page 143</p> <p>1 measurements of what you believe lateral movement is; 2 is that right?</p> <p>3 A. I did not. I was referring to long-tunnel 4 PFOs, though, which 1 millimeter is not a long-tunnel 5 PFO.</p> <p>6 Q. And so, just so that the record is clear, 7 when you say lateral movement, in the cop text of 8 your deposition today, and what you said in your 9 report, it's movement beyond 1 to 2 millimeters?</p> <p>10 A. Correct. 11 Q. Is it beyond 3 millimeters?</p> <p>12 MR. ZAYED: Object to form. 13 A. My concept of lateral movement, again, goes 14 back to the defect we're trying to correct. And it 15 would be 1 centimeter. 2 centimeters, even.</p> <p>16 Q. (BY MS. WANG) So, then, you also say that in 17 your report it's theoretically possible -- you agree 18 with Dr. Javois that splaying is not lateral 19 movement? Is that correct?</p> <p>20 A. Correct. 21 Q. And how do you define splaying?</p> <p>22 A. Spreading apart (indicating). One side 23 versus the other. 24 Q. Okay. So, in terms of splaying, one side 25 versus the other, is one part of the central portion</p>	<p style="text-align: right;">Page 145</p> <p>1 Q. (BY MS. WANG) And I think, Dr. Mullins, you 2 should have the Lock patent in front of you.</p> <p>3 A. Yeah. 4 Q. And at any time you want to refer to the 5 entire patent, you are more than welcome to.</p> <p>6 A. Look at the description. That is 132 and 7 122. Okay. This is described as a "connecting rod." 8 I would consider that part of the end disk.</p> <p>9 So the central portion would be 128 to 124. 10 Q. Okay. So, 132 and 122 in this Exhibit 296 11 you consider connecting rods; is that correct?</p> <p>12 A. Correct. 13 Q. And then the portion that's marked as 128, 14 you -- you are defining as the central portion?</p> <p>15 A. Central portion, yes. 16 Q. And why do you define the portion labeled 128 17 as the central portion?</p> <p>18 A. It's central between the two fixed disks. 19 Q. And looking at the depiction of Figure 1 -- 20 I'm sorry, Figure 10 in Exhibit 296, does that depict 21 a long-tunnel PFO?</p> <p>22 A. No. 23 Q. Does that depict a usual PFO?</p> <p>24 A. There is rarely that much difference in 25 septal thickness on both sides.</p>

37 (Pages 142 to 145)

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3/6/2013

Page 146

1 Q. Okay. So, what kind of defect, as a person
2 of ordinary skill in the art, do you interpret that
3 depicting?
4 A. A very small ASD.
5 Q. And why do you say it's a very small ASD?
6 A. There's no overlapping flaps at all. I mean,
7 it could be a VSD. But it's a straight through
8 channel.
9 Q. Okay. Let's quickly go back to Exhibit 101,
10 which was previously marked as the '738 patent?
11 A. Okay.
12 Q. And on Page 11 of your report -- you might
13 want to get that out as well. All right. In the
14 first full paragraph on Page 11, you start discussing
15 the asserted claims.
16 A. Okay.
17 Q. And that they recite that a: Central portion
18 is "shaped to form" either a "resilient portion to
19 thereby pull the two large diameter portions toward
20 the other" or a "stretchable portion ... to adjust to
21 a thickness of a patient's atrial septum while the
22 two enlarged diameter portions remain in their preset
23 configuration."
24 Do you see that?
25 A. Yes.

Page 147

1 Q. Okay. In your experience, can a central
2 portion both be resilient to thereby pull the two
3 enlarged diameter portions toward the other and
4 stretchable to adjust to a thickness of a patient's
5 atrial septum while the two enlarged diameter
6 portions remain in the preset configuration at the
7 same time?
8 MR. ZAYED: Object to form.
9 A. In the embodiment of the '738 patent, yes.
10 Q. (BY MS. WANG) Okay. So -- and you interpret
11 these phrases, "shaped to form," specifically, I want
12 you to focus on --
13 A. Yes.
14 Q. -- to require the central portion to have an
15 added shape that allows the two enlarged diameter
16 portions to pull toward each other more than they
17 would without the added shape?
18 A. Yes.
19 Q. And so, my question to you is: Can you
20 explain to me what you mean by "added shape"?
21 A. Having a -- a coil, a loop, a fixed bend,
22 that is straightened out and then pulls back
23 together, or a loop that unwinds and pulls back
24 together. But not a straight tube that moves.
25 Q. And why do you exclude a straight tube that

Page 148

1 moves?
2 A. It doesn't have elasticity in length. If it
3 is a straight tube fixed to the -- the disk, it's not
4 going to have any lateral motion.
5 Q. So, would you agree that a cylinder is a
6 shape?
7 MR. ZAYED: Object to form.
8 A. Yes.
9 Q. (BY MS. WANG) And so, I'm just trying to
10 ask -- I'm just trying to understand, when you say an
11 "added shape," what's that shape added to?
12 A. The -- the added shape in the device is added
13 to the central connecting portion.
14 Q. Is there a shape -- in the invention
15 disclosure, is there a shape of the central portion
16 before there is a shape added to it?
17 MR. ZAYED: Object to form.
18 A. Presumably it would be a longer length that
19 is then coiled, wrapped, and has built-in elasticity
20 in the material.
21 Q. (BY MS. WANG) So, is it your position that
22 in order to have an added shape, you have to have a
23 coil, a bend, or a spiral in the central portion.
24 A. There may be some other geometry, but
25 basically, yes.

Page 149

1 Q. And sitting here today as a person of
2 ordinary skill in the art, can you think of any
3 additional geometry that would be added to the
4 central portion of a device that you, in your
5 opinion, would think that satisfies the claim
6 limitation of claim 23?
7 A. Besides a bend, loop, coil, no.
8 Q. And so, just to be clear, in your opinion, no
9 cylindrical central portion, regardless of its
10 dimension or length, can be an added shape?
11 MR. ZAYED: Object to form.
12 A. Can be or can be made into?
13 Q. (BY MS. WANG) Can be an added shape.
14 A. No straight -- no cylindrical portion.
15 A cylinder by itself, no.
16 Q. Okay. So, let's just go back to the '738
17 patent. And looking at the embodiment in Figure 6 of
18 the patent.
19 A. Okay.
20 Q. So, in your opinion, Figure 6 would not have
21 an added shape; is that correct?
22 MR. ZAYED: Object to form,
23 mischaracterizes his testimony. Mischaracterizes the
24 patent as well, as to what Figure 6 is showing.
25 A. I would interpret Figure 6 as being the

38 (Pages 146 to 149)

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3/6/2013

Page 150

1 stretched-out version of the embodiment of the loop
2 of the coil. It would be Figure 2 when it's in a
3 long tube.

4 Q. Okay. So, in interpreting the words that are
5 in the patent, which is "shaped to form," you
6 consistently, in your opinion, required an added
7 shape in order to satisfy the limitation of "shaped
8 to form"; is that right?

9 A. Yes.

10 Q. And so, you don't -- sitting here today, you
11 don't have an opinion as to whether or not something
12 can be "shaped to form" if it doesn't have that added
13 shape?

14 MR. ZAYED: Object to form. It
15 mischaracterizes his testimony and his expert report.

16 A. It needs an added shape to be "shaped to
17 form," correct.

18 Q. (BY MS. WANG) Okay. You also say that
19 claim 23 requires the central portion to have an
20 added shape that would allow the two enlarged
21 diameter portions to pull together -- pull toward
22 each other more than they would have without that
23 added shape?

24 A. Correct.

25 Q. So, when you say pull together -- I'm sorry,

Page 152

1 A. Here are two disks fixed together with the --
2 with no added shape. You can't pull them apart.
3 With an added shape in the middle, you can pull them
4 apart.

5 So, you have a mechanism of springing the two
6 back together, to recoil them back together.

7 Q. (BY MS. WANG) Okay.

8 A. If you just have the straight segment,
9 there's no recoil to that at all. It doesn't have
10 any inherent capability of pulling it together.

11 Q. You would agree, wouldn't you, though, that
12 the Amplatzer ASO device, when it stretched in the
13 catheter and it comes out of the catheter, pulls
14 itself back together; is that correct?

15 MR. ZAYED: Object to form.

16 A. I would agree that it stretched out with
17 marked force, much greater than you ever get in the
18 body, and with marked deformity of the disks.

19 Yeah, you can stretch the middle of that out.
20 But only by deforming the disks and, again, with
21 force that's not possible to achieve in the body.

22 Q. (BY MS. WANG) Okay. But I'm just asking
23 you: When you load an Amplatzer ASO device into the
24 catheter, you stretch it out.

25 A. Correct.

Page 151

1 "pull toward each other more than they would have
2 without the added shape," what are you comparing the
3 added shape to?

4 A. I'm not comparing it to anything. If you
5 don't have the loop or the -- the memory of the band,
6 the loop, the coil, pulling it together, you just
7 have a straight segment.

8 And the straight segment is not necessarily
9 going to pull them together, if it's -- if it's not
10 formed to shape.

11 Q. Okay. So, the next thing you say is: The
12 central portion having an added shape that allows the
13 two enlarged diameter portions to stretch apart from
14 each other more than they would have without the
15 added shape.

16 A. Correct.

17 Q. Do you see that?

18 And then, so, I'm just trying to understand
19 what context that comes into. So, can you explain to
20 me what the comparison is, again, with the added
21 shape and the stretchability.

22 What do you mean when you say "stretch apart
23 from each other more than they would have without the
24 added shape"?

25 MR. ZAYED: Object to form.

Page 153

1 Q. And that middle section, the central portion
2 of the device elongates; is that correct?

3 MR. ZAYED: Object to form. That
4 mischaracterizes --

5 A. Only with the marked deformity of the disks
6 and marked force, yes.

7 Q. (BY MS. WANG) That's fine.

8 But when you release it from the catheter, it
9 resiliently comes back together, doesn't it?

10 A. Correct.

11 MR. ZAYED: Object to form.

12 Q. (BY MS. WANG) So, further down on the page,
13 you say that: Figures 2, 9, and 10 of the '738
14 patent depict devices meeting the requirements of
15 claims 23 and 30, and thus embodying the asserted
16 claims.

17 Do you see that?

18 A. Yes.

19 Q. And there isn't a citation -- well, there is
20 a citation that you state, patent Column 10, Lines 38
21 through 48. So if you could turn to that.

22 A. It's in the patent?

23 Q. Yes, please.

24 A. Now, what am I looking for?

25 Q. I'm sorry. Column 10?

39 (Pages 150 to 153)

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3/6/2013

<p style="text-align: right;">Page 154</p> <p>1 A. Column 10.</p> <p>2 Q. Lines 39 through 48.</p> <p>3 A. Okay.</p> <p>4 Q. Okay. So, in Column 10, Lines 39 through 48,</p> <p>5 does the patent specifically say that Figures 2, 9,</p> <p>6 and 10 embody claims 23 and 30?</p> <p>7 MR. ZAYED: Object to form. The</p> <p>8 patent states what it states.</p> <p>9 A. Does -- does the patent state in this</p> <p>10 paragraph? No.</p> <p>11 Q. (BY MS. WANG) And going back to your report</p> <p>12 on Page 11, you say: The central portion of the</p> <p>13 Sideris '488 device is made of material that is</p> <p>14 inherently stretchable.</p> <p>15 A. Correct.</p> <p>16 Q. And so -- and that's a true statement?</p> <p>17 A. Correct.</p> <p>18 Q. But you're making the distinction that the</p> <p>19 central portion is not made into a particular form</p> <p>20 that allows the central portion to stretch more?</p> <p>21 A. That's correct.</p> <p>22 Q. Is that right?</p> <p>23 And that's because it's your opinion that the</p> <p>24 words "shaped to form" require there be to a helical</p> <p>25 configuration, a bend, or some sort of coil or</p>	<p style="text-align: right;">Page 156</p> <p>1 disks?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 The relevance of -- he's not here --</p> <p>4 he's here to discuss invalidity. He's not here to</p> <p>5 discuss the Amplatzer device.</p> <p>6 Object to form of the question. The</p> <p>7 Amplatzer PFO device is not at issue in this case.</p> <p>8 It's claims 23 and 30.</p> <p>9 Q. (BY MS. WANG) You can answer the question.</p> <p>10 A. The question was, do I think I can stretch</p> <p>11 the central portion of the '738 patent device?</p> <p>12 Q. No. The question is: Do you think that you</p> <p>13 can stretch the central portion of the Amplatzer PFO</p> <p>14 device a millimeter without deforming the enlarged</p> <p>15 disk portions?</p> <p>16 A. Possibly a millimeter. 6 millimeters, no.</p> <p>17 Q. Other than the definitions that we've talked</p> <p>18 about in the section of The Court's Claim</p> <p>19 Construction, Pages 10, 11, and a little bit of part</p> <p>20 of on the top of Page 12, are there any definitions</p> <p>21 that you applied in your expert report that you don't</p> <p>22 expressly state in these sections?</p> <p>23 A. I don't think so. I mean, I -- if I didn't</p> <p>24 specifically describe them, they're of common</p> <p>25 knowledge.</p>
<p style="text-align: right;">Page 155</p> <p>1 spiral?</p> <p>2 A. Correct.</p> <p>3 MR. ZAYED: I think that</p> <p>4 mischaracterizes his testimony as well. So I object</p> <p>5 on those grounds.</p> <p>6 Q. (BY MS. WANG) So, then you also say, further</p> <p>7 down on the page, that: The device described in the</p> <p>8 Kotula '552 patent is made of a material that one of</p> <p>9 the ordinary skill in the art would deem resilient.</p> <p>10 Do you see that?</p> <p>11 A. Yes.</p> <p>12 Q. And do you agree with that statement?</p> <p>13 MR. ZAYED: Object to form.</p> <p>14 A. Yes.</p> <p>15 Q. (BY MS. WANG) But you've discounted the fact</p> <p>16 that it's -- it can meet the limitation of "shaped to</p> <p>17 form" because the central portion is cylindrical; is</p> <p>18 that right?</p> <p>19 A. It's cylindrical and it doesn't stretch under</p> <p>20 normal pressures, or without deforming the end disks.</p> <p>21 Q. Okay.</p> <p>22 A. You cannot stretch that a millimeter without</p> <p>23 deforming the end disks.</p> <p>24 Q. Do you know whether or not you can stretch</p> <p>25 the Amplatzer PFO device without deforming the end</p>	<p style="text-align: right;">Page 157</p> <p>1 Q. And when you say "they're of common</p> <p>2 knowledge," what do you mean?</p> <p>3 A. That at least 90 percent of people would</p> <p>4 agree to that definition.</p> <p>5 Q. And not to be too specific, but when you say</p> <p>6 "90 percent of people would agree to that</p> <p>7 definition," do you mean people of ordinary skill in</p> <p>8 the art, or do you mean people like me and Mr. Zayed?</p> <p>9 MR. ZAYED: Object to form.</p> <p>10 A. Probably both.</p> <p>11 Q. (BY MS. WANG) Okay. So I'm going to hand</p> <p>12 you what's been previously marked as Exhibit 64 at</p> <p>13 the Afremov deposition.</p> <p>14 Dr. Mullins, have you seen this document</p> <p>15 before?</p> <p>16 MR. ZAYED: Object to form, it -- take</p> <p>17 your time to look at it. Dr. Mullins, it's a --</p> <p>18 A. I certainly have not seen anything this</p> <p>19 volume of size. I've seen something from Afremov.</p> <p>20 Q. (BY MS. WANG) Okay.</p> <p>21 A. Maybe just some comments, but --</p> <p>22 Q. Well, for the record, I'll identify this as</p> <p>23 the prosecution history of the '738 patent.</p> <p>24 Did you review the prosecution history of the</p> <p>25 '738 patent in rendering your opinion and prior to</p>

40 (Pages 154 to 157)

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3/6/2013

<p style="text-align: right;">Page 158</p> <p>1 testifying here today?</p> <p>2 MR. ZAYED: Dr. Mullins, before you</p> <p>3 answer, you need to look at every page to see if</p> <p>4 you've seen any of these pages in rendering your</p> <p>5 opinion.</p> <p>6 Q. (BY MS. WANG) Well, let me be clear, first.</p> <p>7 Dr. Mullins, prior to rendering your opinion,</p> <p>8 and prior to testifying today, have you seen the</p> <p>9 entire prosecution history of the '738 patent?</p> <p>10 A. The entire prosecution?</p> <p>11 Q. Yes.</p> <p>12 A. No.</p> <p>13 Q. We --</p> <p>14 MR. ZAYED: He's still -- he's still</p> <p>15 reviewing the document. Because his report</p> <p>16 references the prosecution history, obviously he's</p> <p>17 reviewed it. He's entitled to see that.</p> <p>18 MS. WANG: I don't have a question</p> <p>19 pending, Mr. Zayed, and --</p> <p>20 MR. ZAYED: Yes, you do. Your</p> <p>21 question goes: Have you -- have you seen any</p> <p>22 portions of it?</p> <p>23 MS. WANG: No. I asked him -- my</p> <p>24 specific question, which he answered, was: Prior to</p> <p>25 rendering your opinion in the expert report and at</p>	<p style="text-align: right;">Page 160</p> <p>1 claim 23, which requires resiliency -- and you're</p> <p>2 more than welcome --</p> <p>3 MR. ZAYED: Object to form.</p> <p>4 Q. (BY MS. WANG) -- to look at --</p> <p>5 MR. ZAYED: Read claim 23.</p> <p>6 Q. (BY MS. WANG) -- Exhibit 101, claim 23.</p> <p>7 A. Yeah, I -- I've got that. 23?</p> <p>8 Q. Are you ready?</p> <p>9 A. Yeah.</p> <p>10 Q. So, as a person of ordinary skill in the art</p> <p>11 interpreting the limitations of claim 23, what was</p> <p>12 your understanding of when a device must exhibit</p> <p>13 flexibility in order to satisfy the limitations?</p> <p>14 MR. ZAYED: Object to form.</p> <p>15 A. It has to be flexible enough to conform to</p> <p>16 whatever the tunnel might be, whether it's a short</p> <p>17 tunnel or a long tunnel, and still maintain the</p> <p>18 disks, still maintain them against the septum.</p> <p>19 Q. (BY MS. WANG) So, I appreciate that. But my</p> <p>20 question is a little bit different, which is: When,</p> <p>21 in time, does a device have to exhibit that</p> <p>22 flexibility, in your opinion, in order to satisfy the</p> <p>23 limitation? Is it when it's fully implanted or when</p> <p>24 it's being implanted?</p> <p>25 A. It's both.</p>
<p style="text-align: right;">Page 159</p> <p>1 deposition, have you seen the entire prosecution</p> <p>2 history?</p> <p>3 Which he demonstrated responded "no."</p> <p>4 MR. ZAYED: He needs to review it</p> <p>5 before he responds. He needs to review the entire</p> <p>6 prosecution history before answering.</p> <p>7 MS. WANG: He's already responded,</p> <p>8 Mr. Zayed.</p> <p>9 THE WITNESS: Is this the entire</p> <p>10 prosecution history?</p> <p>11 MR. ZAYED: I have no idea. It's a</p> <p>12 document provided to you by --</p> <p>13 A. I have not reviewed all of this, that's for</p> <p>14 sure.</p> <p>15 Q. (BY MS. WANG) Okay. That was my question.</p> <p>16 We had spent a little bit of time talking,</p> <p>17 Dr. Mullins, about your opinions with respect to what</p> <p>18 the claims 23 and 30 require in terms of resiliency</p> <p>19 and stretchability.</p> <p>20 Do you recall that?</p> <p>21 MR. ZAYED: Object to form.</p> <p>22 A. We just finished it.</p> <p>23 Q. (BY MS. WANG) Right. And so, you indicated</p> <p>24 some things that I want to do follow-up on.</p> <p>25 So, in terms of meeting the limitations of</p>	<p style="text-align: right;">Page 161</p> <p>1 Q. Okay. So, in rendering your opinion, you</p> <p>2 considered the time period of during implantation to</p> <p>3 after implantation?</p> <p>4 MR. ZAYED: Object to form.</p> <p>5 A. Well, I consider the time whenever the device</p> <p>6 is in -- in place, and the disks are fully deployed.</p> <p>7 Then it still has to have its flexibility and return</p> <p>8 to form. But with the disks deployed.</p> <p>9 Q. (BY MS. WANG) And you base that</p> <p>10 understanding on your review of the '738 patent?</p> <p>11 A. Yes.</p> <p>12 Q. And you applied that understanding in</p> <p>13 rendering your expert opinion here?</p> <p>14 A. Yes.</p> <p>15 Q. Now, you've also mentioned that that</p> <p>16 physiological forces wouldn't be able to cause</p> <p>17 certain things to happen, correct?</p> <p>18 A. Correct.</p> <p>19 Q. And so, as a person of ordinary skill in the</p> <p>20 art in interpreting the '738 patent, it's your</p> <p>21 opinion that the '738 patent has to be interpreted</p> <p>22 through the lens of physiological forces?</p> <p>23 A. Yes.</p> <p>24 Q. And you applied that consistently in</p> <p>25 rendering your opinions here?</p>

41 (Pages 158 to 161)

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3/6/2013

<p style="text-align: right;">Page 162</p> <p>1 A. Yes.</p> <p>2 THE VIDEOGRAPHER: Two minutes.</p> <p>3 MS. WANG: We have to change the tape.</p> <p>4 I'm sorry, Dr. Mullins.</p> <p>5 THE VIDEOGRAPHER: The time is 1:16</p> <p>6 and we're off the record.</p> <p>7 (Break.)</p> <p>8 THE VIDEOGRAPHER: This is the</p> <p>9 beginning of Tape No. 4 to the deposition of</p> <p>10 Dr. Mullins. The time is 1:25 and we're on the</p> <p>11 record.</p> <p>12 Q. (BY MS. WANG) Dr. Mullins, we were -- we</p> <p>13 left off with you talking about the forces that can</p> <p>14 cause lateral movement.</p> <p>15 Do you recall that?</p> <p>16 A. Yes.</p> <p>17 MR. ZAYED: Object to form.</p> <p>18 Q. (BY MS. WANG) And it was your testimony that</p> <p>19 physiological forces was what you were using to</p> <p>20 interpret the '738 patent; is that correct?</p> <p>21 A. Yes.</p> <p>22 Q. When you say "physiological forces," what do</p> <p>23 you mean?</p> <p>24 A. Forces that would be applicable within the</p> <p>25 body. I mean, not forces that you can put on a</p>	<p style="text-align: right;">Page 164</p> <p>1 MR. ZAYED: Object to form.</p> <p>2 A. They have a little to do with large ASDs, and</p> <p>3 there's some contingent pressure from the left</p> <p>4 atrium. But in terms of the PFOs, it doesn't have</p> <p>5 any effect.</p> <p>6 Q. So, going back to the '738 patent, what is</p> <p>7 your understanding of when a device must exhibit</p> <p>8 resiliency in order to meet the limitations of</p> <p>9 claim 23?</p> <p>10 MR. ZAYED: Asked and answered.</p> <p>11 We covered this.</p> <p>12 MS. WANG: I think I asked about</p> <p>13 flexibility.</p> <p>14 MR. ZAYED: You asked about the claim</p> <p>15 limitations. It's asked and answered.</p> <p>16 Q. (BY MS. WANG) You can answer.</p> <p>17 A. Once the device is in place, it has to have</p> <p>18 the resiliency to conform to the septum without</p> <p>19 distorting the rest of the tissues.</p> <p>20 Q. And that's the definition that you applied to</p> <p>21 resiliency in rendering your opinion, as well as</p> <p>22 testifying here today?</p> <p>23 MR. ZAYED: Object to form.</p> <p>24 A. Yes.</p> <p>25 Q. (BY MS. WANG) And with respect to</p>
<p style="text-align: right;">Page 163</p> <p>1 device with a pair of pliers or something rigid.</p> <p>2 You're dealing with very soft, pliable --</p> <p>3 pliable tissues, and the forces that are not going to</p> <p>4 distort those tissues, but at the same time, allow</p> <p>5 movement of the device.</p> <p>6 Q. Okay. So, in terms of physiological forces,</p> <p>7 you said -- that are occurring in the body, in</p> <p>8 interpreting the '738 patent where you focused on the</p> <p>9 physiological forces that occur within the heart?</p> <p>10 A. Within the heart, yes.</p> <p>11 Q. And what are those physiological forces?</p> <p>12 A. Very small.</p> <p>13 Q. No -- okay. So let me ask it a different</p> <p>14 way.</p> <p>15 Are you accounting for the heart beating?</p> <p>16 A. Not necessarily. I'm accounting for the</p> <p>17 stresses placed on tissues by the devices and the</p> <p>18 ability of those tissues to withstand the forces</p> <p>19 without distortion.</p> <p>20 Q. Can a beating heart distort a device?</p> <p>21 A. Micromillimeters. But generally the device</p> <p>22 is stiffer than the heart.</p> <p>23 Q. And what about the hemodynamics of the heart.</p> <p>24 Are you considering those as part of physiological</p> <p>25 forces?</p>	<p style="text-align: right;">Page 165</p> <p>1 claim 30, what's your understanding of when a device</p> <p>2 must exhibit stretchability in order to satisfy the</p> <p>3 limitations of claim 30?</p> <p>4 MR. ZAYED: Object to form.</p> <p>5 A. Essentially the same as what we've discussed.</p> <p>6 It's got to be stretchable, but not distort the</p> <p>7 tissues.</p> <p>8 Q. (BY MS. WANG) And that's when -- once it's</p> <p>9 fully --</p> <p>10 A. Deployed.</p> <p>11 Q. -- deployed.</p> <p>12 And that's the definition that you applied in</p> <p>13 rendering your opinion and testifying here today?</p> <p>14 MR. ZAYED: Object to form.</p> <p>15 A. Yes.</p> <p>16 Q. (BY MS. WANG) So, if you could turn in your</p> <p>17 expert report, which is -- was marked as Exhibit 289.</p> <p>18 A. Okay.</p> <p>19 Q. And if you look on Page 88 of your report.</p> <p>20 A. All right.</p> <p>21 Q. I believe that's not correct. Sorry.</p> <p>22 Can I actually have you turn to Page 41.</p> <p>23 A. All right.</p> <p>24 Q. You say at the bottom of the second</p> <p>25 paragraph: While the material that has been</p>

42 (Pages 162 to 165)

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3/6/2013

<p style="text-align: right;">Page 166</p> <p>1 disclosed -- that the disclosed ASO device is</p> <p>2 constructed from nitinol wire is certainly elastic,</p> <p>3 the device is constructed from many wires in a tight</p> <p>4 weave formed into a cylinder and there is no</p> <p>5 indication or suggestion to a person of ordinary</p> <p>6 skill in the art that the tight weave of the wires</p> <p>7 and the waist geometry of the disclosed ASO device</p> <p>8 results in a central portion that is flexible to</p> <p>9 allow the enlarged diameter portions to move</p> <p>10 laterally.</p> <p>11 Do you see that?</p> <p>12 A. Right.</p> <p>13 Q. So, when you use the term "elastic" in that</p> <p>14 sentence, what do you mean?</p> <p>15 A. Okay. The wires are bendable. The</p> <p>16 individual wires are bendable. They're really not</p> <p>17 stretchable, though, the individual wires. Mostly</p> <p>18 malleable, bendable.</p> <p>19 Q. Okay. And when you say the individual wires</p> <p>20 aren't stretchable, what do you mean?</p> <p>21 A. Well, it's made up of 72 or something</p> <p>22 separate wires woven together.</p> <p>23 If you take an individual strand of that</p> <p>24 wire, it's malleable, bendable. As a composite woven</p> <p>25 together, then it's no longer stretchable.</p>	<p style="text-align: right;">Page 168</p> <p>1 Q. So, when you use that word of "resilient"</p> <p>2 there, it's the same definition of resiliency we have</p> <p>3 just talked about?</p> <p>4 A. Yes.</p> <p>5 MR. ZAYED: Object to form.</p> <p>6 Q. (BY MS. WANG) I'm going to hand you what's</p> <p>7 been previously marked as Exhibit 142. And then</p> <p>8 we'll also hand you --</p> <p>9 MS. WANG: This is 297?</p> <p>10 A. These, I don't have yet.</p> <p>11 Q. (BY MS. WANG) You don't have these yet. I'm</p> <p>12 just giving you more and more to add to your</p> <p>13 collection.</p> <p>14 (Exhibit 297 is marked.)</p> <p>15 Q. (BY MS. WANG) Okay. And 297 -- and it</p> <p>16 probably is helpful if you keep Exhibit 101, which is</p> <p>17 the '738 patent, out.</p> <p>18 A. I see it here. Okay.</p> <p>19 Q. Are you ready, Dr. Mullins?</p> <p>20 A. Yes.</p> <p>21 Q. So, I think you have Exhibit 142 in front you</p> <p>22 have?</p> <p>23 A. Kotula.</p> <p>24 Q. That was marked in Dujon.</p> <p>25 MS. WANG: And it's Patent</p>
<p style="text-align: right;">Page 167</p> <p>1 Q. Okay. So, is the individual wire</p> <p>2 stretchable?</p> <p>3 A. The individual nitinol wire, no.</p> <p>4 Q. And so, I'm just trying to get an</p> <p>5 understanding of "elastic."</p> <p>6 So, when you say "elastic," do you only mean</p> <p>7 that it's bendable, or do you mean that it also</p> <p>8 returns to a preset shape?</p> <p>9 MR. ZAYED: Object to form.</p> <p>10 A. It returns to a preset form from being bent,</p> <p>11 but not stretched.</p> <p>12 Q. (BY MS. WANG) So, just to be clear, going</p> <p>13 back to Page 11 of your report --</p> <p>14 A. Okay.</p> <p>15 Q. -- I think it says, at the very bottom, it</p> <p>16 says: Similarly, the device described in U.S. Patent</p> <p>17 No. 5,725,552 ("Kotula '552") is made of a material</p> <p>18 that one of ordinary skill in the art would deem</p> <p>19 resilient, but it does not meet the limitations of</p> <p>20 claims 23 of the '738 patent because its central</p> <p>21 portion is cylindrical and thus not "shaped to form a</p> <p>22 resilient portion to pull the two enlarged diameter</p> <p>23 portions toward each other."</p> <p>24 Do you see that?</p> <p>25 A. Correct.</p>	<p style="text-align: right;">Page 169</p> <p>1 No. 5,725,552, for the record.</p> <p>2 A. Yes.</p> <p>3 Q. (BY MS. WANG) You've seen this patent</p> <p>4 before?</p> <p>5 A. Yes.</p> <p>6 Q. And prior to this case, had you seen this</p> <p>7 patent?</p> <p>8 A. I think I did see it during the Medtronic</p> <p>9 case.</p> <p>10 Q. Looking at that patent, it discloses three</p> <p>11 inventors: Frank Kotula, Kurt Amplatz, and Curtis</p> <p>12 Amplatz.</p> <p>13 Do you see that?</p> <p>14 A. Yes.</p> <p>15 Q. We talked about you knowing Dr. Kurt Amplatz.</p> <p>16 Do you know Frank Kotula?</p> <p>17 A. No.</p> <p>18 Q. And do you know Mr. Curtis Amplatz?</p> <p>19 A. No.</p> <p>20 Q. And you -- sitting here today, do you have an</p> <p>21 opinion with respect to their contributions to the</p> <p>22 inventions disclosed in the '552 patent?</p> <p>23 MR. ZAYED: Object to form.</p> <p>24 He's not here to render opinions.</p> <p>25 A. I have an opinion, but it's based on just</p>

43 (Pages 166 to 169)

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3/6/2013

<p style="text-align: right;">Page 170</p> <p>1 knowing Kurt Amplatz.</p> <p>2 Q. (BY MS. WANG) Okay. So, let me rephrase it.</p> <p>3 Sitting here today, do you have any facts</p> <p>4 that you're going to testify to about the different</p> <p>5 contributions made by the three inventors of the '552</p> <p>6 patent?</p> <p>7 A. No.</p> <p>8 Q. And just taking a quick look at Exhibit 101,</p> <p>9 which is the '738 patent --</p> <p>10 A. All right.</p> <p>11 Q. -- do you know Michael Afremov?</p> <p>12 A. No.</p> <p>13 Q. And do you know any facts related to his</p> <p>14 contributions to the inventions disclosed in the '738</p> <p>15 patent?</p> <p>16 A. I know for a fact he's an engineer and</p> <p>17 engineering technician. And did a lot of the</p> <p>18 mechanical work.</p> <p>19 Q. Okay.</p> <p>20 A. But otherwise, no.</p> <p>21 Q. Okay. And sitting here today, you're not</p> <p>22 here to render an opinion as to his contributions to</p> <p>23 the '738 patent?</p> <p>24 A. No.</p> <p>25 MR. ZAYED: Object to form.</p>	<p style="text-align: right;">Page 172</p> <p>1 MR. ZAYED: Object to form.</p> <p>2 A. The portion labeled 306.</p> <p>3 Q. (BY MS. WANG) And before we, again, move</p> <p>4 forward, I think you previously testified that in</p> <p>5 terms of interpreting what the patent claims meant,</p> <p>6 you considered the words of the claims 23 and 30?</p> <p>7 A. Yes.</p> <p>8 Q. And you considered the words of the claims of</p> <p>9 claim 20, upon which 23 and 30 depend upon?</p> <p>10 A. Correct.</p> <p>11 Q. And you, in rendering your opinion about what</p> <p>12 claim 23 and 30 means, you considered the entire</p> <p>13 disclosure of the '738 patent?</p> <p>14 A. I considered the -- the three claims</p> <p>15 separately. Those were the only ones in contention.</p> <p>16 Q. Okay. Let me state it a different way: Did</p> <p>17 you read the entire '738 patent?</p> <p>18 A. Yes.</p> <p>19 Q. And in interpreting claims 20, 23, and 30,</p> <p>20 did you take into account everything that the '738</p> <p>21 patent said in order to interpret those claims?</p> <p>22 A. I took into account, yes.</p> <p>23 Q. Okay. And when you interpreted the various</p> <p>24 prior art references that we'll be talking about</p> <p>25 today, did you take into account the entire</p>
<p style="text-align: right;">Page 171</p> <p>1 Q. (BY MS. WANG) Now, to the best of your</p> <p>2 knowledge, and to the best of your ability, did you</p> <p>3 put all of your bases for concluding that the '552</p> <p>4 patent does not anticipate claim 23 or 30 in your</p> <p>5 report?</p> <p>6 A. I believe I did.</p> <p>7 Q. And before we sort of get into looking at</p> <p>8 those reasons --</p> <p>9 A. Each one.</p> <p>10 Q. -- is there anything that you want to change</p> <p>11 about those reasons before we go forward?</p> <p>12 A. I don't think so.</p> <p>13 Q. Okay. Could I have you look at Exhibit 297,</p> <p>14 please, which is the figure from the Kotula '552</p> <p>15 patent.</p> <p>16 A. 297. Not that one; not this one</p> <p>17 (indicating).</p> <p>18 Q. It should be a single page.</p> <p>19 A. Oh, yeah. Okay.</p> <p>20 Q. And so, since we will be talking a lot today</p> <p>21 about what the central portion does and does not do</p> <p>22 in these various patents and devices, could you, for</p> <p>23 the record, identify for me in Figure 17 that's</p> <p>24 Exhibit 297 what the central portion is of this</p> <p>25 device?</p>	<p style="text-align: right;">Page 173</p> <p>1 disclosure of those references?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 A. I -- I think I did, yes. I took into account</p> <p>4 the entire patent part, yeah.</p> <p>5 Q. (BY MS. WANG) Looking at the '552 patent.</p> <p>6 A. Okay.</p> <p>7 Q. And your report, starting on Page 16.</p> <p>8 A. All right.</p> <p>9 Q. Okay. I think, in the second full paragraph</p> <p>10 on this page, you specifically opine: I've</p> <p>11 reviewed -- I have reviewed Kotula '552 and concluded</p> <p>12 that it does not disclose a flexible central portion</p> <p>13 that allows lateral movement of the enlarged diameter</p> <p>14 portions, that it does not disclose a flexible</p> <p>15 central portion that is shaped to form a resilient</p> <p>16 portion to pull together -- to pull the two enlarged</p> <p>17 diameter portions together, that it does not disclose</p> <p>18 a flexible central portion that is shaped to form a</p> <p>19 stretchable portion where the flexible central</p> <p>20 portion stretches to adjust to the thickness of the</p> <p>21 patient's atrial septum while the two enlarged</p> <p>22 diameter portions remain in a preset configuration.</p> <p>23 Is that a complete and accurate statement of</p> <p>24 your opinion -- or a complete and accurate summary of</p> <p>25 why you believe that the Kotula '552 patent does not</p>

44 (Pages 170 to 173)

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3/6/2013

<p style="text-align: right;">Page 174</p> <p>1 anticipate claims 23 and 30?</p> <p>2 MR. ZAYED: Object to form. The</p> <p>3 report is over 120 pages long. It speaks for itself.</p> <p>4 It contains his opinions.</p> <p>5 A. I elaborated on that, but, yes.</p> <p>6 Q. (BY MS. WANG) Okay. So, then, moving to the</p> <p>7 next page, you talk about you have two excerpts from</p> <p>8 Kotula '552. And it says: "The size of the defect</p> <p>9 will correspond to the selected size of the ASD</p> <p>10 device to be used."</p> <p>11 A. Correct.</p> <p>12 Q. As a person of ordinary skill in the art,</p> <p>13 what was your interpretation of that statement?</p> <p>14 MR. ZAYED: Object to form.</p> <p>15 A. The defects are sized by the diameter of the</p> <p>16 central waist. If you get a 22 millimeter device</p> <p>17 that's not the size of the disk, it's the size of the</p> <p>18 waist. And you accurately measure the size of the</p> <p>19 defect and pick a device that's appropriate, the same</p> <p>20 size.</p> <p>21 Q. (BY MS. WANG) And so, is it -- is it fair to</p> <p>22 say, then, that the patent discloses the fact that</p> <p>23 you can vary the size of the diameter of the central</p> <p>24 portion in order to match the size of the ASD?</p> <p>25 A. Yes.</p>	<p style="text-align: right;">Page 176</p> <p>1 length of the cylindrical segment preferably</p> <p>2 approximates the thickness of atrium septal," as a</p> <p>3 person of ordinary skill in the art, what are you</p> <p>4 interpreting that as?</p> <p>5 MR. ZAYED: Object to form.</p> <p>6 You're taking one statement out of</p> <p>7 context. The '552 patent speaks for itself.</p> <p>8 And, Dr. Mullins, feel free to review</p> <p>9 the '552 patent and the area surrounding that before</p> <p>10 you answer.</p> <p>11 A. I would have to relook at it and see if they</p> <p>12 specify in modifying it.</p> <p>13 Q. That's fine. I think you cite Column 19,</p> <p>14 Lines 59 through 61.</p> <p>15 A. It all stays the same. I think it's -- in</p> <p>16 manufacturing it -- I would interpret this, in</p> <p>17 manufacturing, they can manufacture it 2 or 4</p> <p>18 millimeters, but it's the -- it's the same diameter</p> <p>19 for the devices that are sold -- produced -- will be</p> <p>20 produced.</p> <p>21 Q. Okay. So I'm just going to ask you to go</p> <p>22 back to the '552 patent. And I'm looking</p> <p>23 specifically at lines that you cited: "The length of</p> <p>24 the cylindrical segments preferably approximates the</p> <p>25 thickness of the atrial septum."</p>
<p style="text-align: right;">Page 175</p> <p>1 Q. And then the next statement is: The length</p> <p>2 of the cylindrical segment preferably approximates</p> <p>3 the thickness of the atrial septum?</p> <p>4 A. Correct.</p> <p>5 Q. Do you see that?</p> <p>6 And what was your interpretation of that?</p> <p>7 MR. ZAYED: Object to form.</p> <p>8 A. That it approximates the width of the septum,</p> <p>9 2 or 3 millimeters.</p> <p>10 Q. (BY MS. WANG) Can the width of the septum be</p> <p>11 more than 2 to 3 millimeters?</p> <p>12 MR. ZAYED: Object to form.</p> <p>13 A. It can, but the devices don't vary for that.</p> <p>14 Q. (BY MS. WANG) Okay.</p> <p>15 A. It picks a happy medium.</p> <p>16 Q. And when you say "the devices don't vary from</p> <p>17 that," are you saying the devices that are disclosed</p> <p>18 in the 55 -- the Kotula '552 patent, or are you</p> <p>19 thinking about actual commercialized devices?</p> <p>20 MR. ZAYED: Objection.</p> <p>21 A. I am thinking of actual devices.</p> <p>22 Q. (BY MS. WANG) So, if I can just refocus you</p> <p>23 on the Kotula '552 patent.</p> <p>24 A. Okay.</p> <p>25 Q. When the Kotula '552 patent says that "the</p>	<p style="text-align: right;">Page 177</p> <p>1 That's the portion you cited, correct?</p> <p>2 A. Uh-huh.</p> <p>3 Q. Are you there, Dr. Mullins?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. So, the rest of the sentence which you</p> <p>6 don't cite says "in ranges between 2 to 20</p> <p>7 millimeters."</p> <p>8 Do you see that?</p> <p>9 A. Yes.</p> <p>10 Q. So, would you agree with me that the 55 --</p> <p>11 the Kotula '552 patent contemplates that you can vary</p> <p>12 the length of that cylindrical central portion</p> <p>13 between 2 and 20 millimeters?</p> <p>14 MR. ZAYED: Object to form. The</p> <p>15 document speaks for itself.</p> <p>16 A. Meaning this, with the other descriptions and</p> <p>17 the diagrams, it could manufacture it different</p> <p>18 lengths, but you couldn't vary those lengths.</p> <p>19 Q. (BY MS. WANG) Okay. So, I think I</p> <p>20 understand what you're saying.</p> <p>21 What you're saying is that you could</p> <p>22 manufacture a device with a cylinder of 2</p> <p>23 millimeters, of 4 millimeters, of 6 millimeters, of 8</p> <p>24 millimeters, all the way up to 20 millimeters?</p> <p>25 A. 20, correct.</p>

45 (Pages 174 to 177)

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3/6/2013

<p style="text-align: right;">Page 178</p> <p>1 Q. Is that correct?</p> <p>2 And so, it's fair to say that the Kotula '552</p> <p>3 patent contemplates that you can have various lengths</p> <p>4 for the central portion?</p> <p>5 A. Yes.</p> <p>6 MR. ZAYED: Object to form.</p> <p>7 Q. (BY MS. WANG) And it's also -- just turning</p> <p>8 to the next page, page 18.</p> <p>9 MR. ZAYED: Of what, Kotula or the</p> <p>10 report or --</p> <p>11 Q. (BY MS. WANG) I'm sorry. Of your report.</p> <p>12 You say that: One of ordinary skill in the</p> <p>13 art would know that the Kotula '552 device does not</p> <p>14 have a flexible central portion because of the shape</p> <p>15 into which the tubular metal fabric is formed.</p> <p>16 A. Correct.</p> <p>17 Q. And that's because the shape is a cylinder;</p> <p>18 is that right?</p> <p>19 A. Correct.</p> <p>20 Q. Now --</p> <p>21 A. It's a broad cylinder.</p> <p>22 Q. I'm sorry?</p> <p>23 A. A broad cylinder.</p> <p>24 Q. Okay. But in terms of what the Kotula patent</p> <p>25 says, I think you previously testified that the</p>	<p style="text-align: right;">Page 180</p> <p>1 A. Yes.</p> <p>2 Q. -- says?</p> <p>3 A. Yes.</p> <p>4 Q. And the disclosure of the '738 patent says it</p> <p>5 can be used in ASDs or PFOs; is that correct?</p> <p>6 MR. ZAYED: Object to form.</p> <p>7 A. The '738, yes. Both are a bit out of</p> <p>8 context, not describing differences in PFOs in terms</p> <p>9 of tubular length, et cetera.</p> <p>10 Q. (BY MS. WANG) Right. So, when you say both</p> <p>11 are a little out of context, nothing in the</p> <p>12 disclosure of the '552 patent describes the PFOs that</p> <p>13 it's directed to?</p> <p>14 A. No, because they weren't really recognized at</p> <p>15 the time of that patent.</p> <p>16 Q. Okay. And nothing about the '738 patent</p> <p>17 describes the kind of PFO it's directed to?</p> <p>18 MR. ZAYED: Object to form. The</p> <p>19 document speaks for itself.</p> <p>20 A. I believe it does direct it towards displaced</p> <p>21 eccentric openings of a PFO.</p> <p>22 Q. (BY MS. WANG) Does it anywhere in the '738</p> <p>23 patent use the words "eccentric opening"?</p> <p>24 A. I believe it does.</p> <p>25 Q. Okay. So why don't we take a look at Gu</p>
<p style="text-align: right;">Page 179</p> <p>1 Kotula patent discloses that the diameter of the</p> <p>2 central portion can vary depending upon the size of</p> <p>3 the ASD?</p> <p>4 A. Right.</p> <p>5 Q. And it's your opinion that what's</p> <p>6 disclosed -- putting aside your actual experiences</p> <p>7 with devices and just focusing on the disclosure of</p> <p>8 the Kotula '552 patent, is it your opinion that the</p> <p>9 Kotula '552 patent does not disclose a device that</p> <p>10 can be flexible?</p> <p>11 MR. ZAYED: Object to form.</p> <p>12 "Flexible" as defined in the '738</p> <p>13 patent or "flexible" in the abstract? Object to</p> <p>14 form.</p> <p>15 Q. (BY MS. WANG) Do you understand the</p> <p>16 question?</p> <p>17 A. Yeah. I would say flexible, it can bend, but</p> <p>18 it can't move laterally.</p> <p>19 Q. Now, the Kotula '552 patent describes in its</p> <p>20 specification that it can be used for ASDs and PFOs;</p> <p>21 is that correct?</p> <p>22 MR. ZAYED: Object to form.</p> <p>23 A. In theory.</p> <p>24 Q. (BY MS. WANG) But that's what the</p> <p>25 disclosure --</p>	<p style="text-align: right;">Page 181</p> <p>1 Exhibit 101, which is the '738 patent, and take your</p> <p>2 time and you can tell me what you -- where you find</p> <p>3 the words "eccentric opening."</p> <p>4 A. "The device made" -- this is Column 1.</p> <p>5 Q. Uh-huh.</p> <p>6 A. "The device made in accordance with the</p> <p>7 invention is capable of automatically adjusting to a</p> <p>8 septal defect having eccentric openings."</p> <p>9 Q. Okay. And that, in your opinion, refers to</p> <p>10 the long-tunnel PFO?</p> <p>11 A. Yes.</p> <p>12 Q. Okay.</p> <p>13 A. And I -- I think even by 1998, the</p> <p>14 differences in the PFOs were just being recognized.</p> <p>15 Q. So, are the regular anatomy PFOs, for lack of</p> <p>16 a better description, with the short overlap, do</p> <p>17 those -- are those considered to have eccentric</p> <p>18 openings?</p> <p>19 MR. ZAYED: Object to form.</p> <p>20 A. It depends on how critically you look at it.</p> <p>21 Because my definition of a PFO is a potential</p> <p>22 opening. It has a flap over it.</p> <p>23 So, yes, there is a -- an eccentric 1</p> <p>24 millimeter opening. If that flap leaves a gap, then</p> <p>25 it's an ASD, and it shunts the other way.</p>

46 (Pages 178 to 181)

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3/6/2013

<p style="text-align: right;">Page 182</p> <p>1 So, the normal PFO, but it's not a -- an</p> <p>2 important eccentric opening. It -- that, the tissues</p> <p>3 displace easily.</p> <p>4 Q. Okay. I think in -- if you could take a look</p> <p>5 at Page 20 of your report.</p> <p>6 A. And I'm looking at the statement that says:</p> <p>7 Certainly the ASO device is flexible to the extent it</p> <p>8 can be collapsed into a catheter for delivery.</p> <p>9 Do you see that?</p> <p>10 MR. ZAYED: Just take your time. Read</p> <p>11 the paragraph.</p> <p>12 A. Well, I'm trying to see --</p> <p>13 Q. (BY MS. WANG) It's in the middle of the</p> <p>14 second paragraph.</p> <p>15 A. It starts with -- yeah. Okay.</p> <p>16 Q. And so, in that statement, you're saying that</p> <p>17 the device is flexible to the extent that it can be</p> <p>18 collapsed into the catheter for delivery, and that</p> <p>19 includes the central portion; is that correct?</p> <p>20 MR. ZAYED: Object to form.</p> <p>21 A. Yes.</p> <p>22 Q. (BY MS. WANG) But then, it's your position</p> <p>23 that it's not flexible to allow lateral movement once</p> <p>24 it's fully deployed?</p> <p>25 A. Correct.</p>	<p style="text-align: right;">Page 184</p> <p>1 MR. ZAYED: Object to form.</p> <p>2 A. It's -- it's no longer resilient back after</p> <p>3 it's back in its preset form, under normal forces.</p> <p>4 But it does return -- the central portion does, yes.</p> <p>5 Q. (BY MS. WANG) And when the central portion</p> <p>6 returns to its preset configuration, the two outer</p> <p>7 disks also come together; is that correct?</p> <p>8 MR. ZAYED: Object to form.</p> <p>9 A. Correct.</p> <p>10 Q. (BY MS. WANG) And that's disclosed in the</p> <p>11 Kotula '552 patent?</p> <p>12 MR. ZAYED: Object to form.</p> <p>13 A. In the -- in the Kotula patent, the disks</p> <p>14 don't come quite as close together as in the later</p> <p>15 versions of the ASO device.</p> <p>16 Q. (BY MS. WANG) Okay. So, when you say in the</p> <p>17 Kotula patents the disks don't come quite as close</p> <p>18 together, what do you mean?</p> <p>19 A. The edges of the disks don't overlap as they</p> <p>20 do on the ASO device. And I'm pretty sure they don't</p> <p>21 have this on the patent, anyway.</p> <p>22 Q. Well, if you would look at the Kotula '552</p> <p>23 patent.</p> <p>24 A. That's what I'm looking at.</p> <p>25 Q. Figure 13.</p>
<p style="text-align: right;">Page 183</p> <p>1 Q. And then, on the page -- on the Page 21, at</p> <p>2 the top --</p> <p>3 A. Okay.</p> <p>4 Q. -- you would say: The Kotula '552 teaches an</p> <p>5 "elastic" device that "return[s]" to its "expanded</p> <p>6 configuration" after being collapsed into a catheter</p> <p>7 for deployment.</p> <p>8 Correct?</p> <p>9 A. Correct.</p> <p>10 Q. And I think, based on your previous</p> <p>11 testimony, we would agree -- you would agree that</p> <p>12 that means the device is resilient; is that correct?</p> <p>13 MR. ZAYED: Object to form.</p> <p>14 Mischaracterizes the prior testimony.</p> <p>15 A. Well, it's resilient with enough force.</p> <p>16 Q. (BY MS. WANG) Okay.</p> <p>17 A.. Excessive force.</p> <p>18 Q. But -- right. But just from the perspective</p> <p>19 of once it's collapsed into the catheter and it's</p> <p>20 fully deployed, it is resilient back to its preset</p> <p>21 configuration, correct?</p> <p>22 MR. ZAYED: Object to form.</p> <p>23 Q. (BY MS. WANG) And when it's resilient back</p> <p>24 to its preset configuration, the central portion is</p> <p>25 also resilient back to the preset configuration?</p>	<p style="text-align: right;">Page 185</p> <p>1 A. All right. Figure 13 does seem to show a</p> <p>2 little overlap.</p> <p>3 Q. So, would you agree that the Kotula '552</p> <p>4 patent discloses a device where the outer disks come</p> <p>5 together?</p> <p>6 MR. ZAYED: Object to form.</p> <p>7 Mischaracterizes the document.</p> <p>8 A. In that -- in that one drawing.</p> <p>9 Q. (BY MS. WANG) So, I'm just focused on just</p> <p>10 the disclosure of the Kotula '552 patent.</p> <p>11 A. Yes.</p> <p>12 Q. So you would agree that the disclosure of the</p> <p>13 Kotula '552 patent contemplates a device that has the</p> <p>14 two outer disks coming all the way together?</p> <p>15 MR. ZAYED: Object to form.</p> <p>16 A. Yes.</p> <p>17 Q. (BY MS. WANG) And if you look at the</p> <p>18 description of the drawings -- it's Column 4, about</p> <p>19 Line 12 to 13.</p> <p>20 A. Column 4. Okay. And that was -- what</p> <p>21 drawing was that?</p> <p>22 Q. 13.</p> <p>23 A. 13. Okay.</p> <p>24 Q. Figure 13 is described as an enlarged side</p> <p>25 elevational view of an ASD device shown in its</p>

47 (Pages 182 to 185)

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3/6/2013

<p style="text-align: right;">Page 186</p> <p>1 preshaped configuration. 2 A. Right. 3 Q. Is that correct? 4 A. Uh-huh. 5 Q. Okay. And then, could you look at Figure 16? 6 A. Yes. 7 Q. And Figure 16 shows the occluder actually 8 deployed in the heart; is that right? 9 A. Correct. 10 Q. And in this picture, the occluder has a 11 longer central portion than what's depicted in 12 Figure 13? 13 MR. ZAYED: Object to form. 14 Q. (BY MS. WANG) Is that correct? 15 MR. ZAYED: The document speaks for 16 itself. 17 A. I'm not sure it's longer or not. I mean, 18 this is -- these are not to proportion, nor with any 19 markings for sizes. 20 Yeah, the -- the septum looks a little 21 thicker. The septum looks like a straight board, and 22 not a tapered septum. 23 So, it is a diagrammatic illustration, like 24 diagrams in my book. It isn't a photograph or an 25 exact reproduction.</p>	<p style="text-align: right;">Page 188</p> <p>1 you're talking about the disclosure of the Kotula 2 '552 patent, correct? 3 A. Right. 4 Q. And you're not talking about the actual 5 physical embodiment of the ASO device? 6 A. No. 7 Q. And in your opinion, as a person of ordinary 8 skill in the art, the ability for the enlarged 9 diameter portions to move and flex and conform to the 10 contours of the septal wall would not meet the 11 limitation of being flexible -- well, would not meet 12 the limitations of claim 23? 13 A. No, it's not the central portion. 14 Q. And in your opinion, as a person of ordinary 15 skill in the art, the ability of the enlarged 16 diameter portions to flex and conform to the contours 17 of the septal wall would not meet the limitations of 18 claim 30? 19 MR. ZAYED: Object to form. 20 A. That's correct. 21 Q. (BY MS. WANG) And even the Kotula '552 22 patent discloses that a device can have a range of 23 central -- the devices can have a range of central 24 portions that vary in length, so have 2 millimeters, 25 4 millimeters, all the way up to 20 --</p>
<p style="text-align: right;">Page 187</p> <p>1 Q. (BY MS. WANG) But you would agree with me, 2 wouldn't you, that you can't see the central portion 3 of Figure 13? 4 MR. ZAYED: Object to form. The 5 document speaks for itself. 6 A. Correct. But in the septum, you could. 7 Q. (BY MS. WANG) Okay. And -- and you can't 8 see -- and you can see the central portion in 9 Figure 13 -- 10 A. Correct. 11 Q. -- or 16? Is that correct? 12 MR. ZAYED: Object to form. 13 A. Yes. 14 Q. (BY MS. WANG) So -- so, then, further down, 15 on Page 21, it says: One of ordinary skill in the 16 art would understand that Dr. Gall is referring to 17 the ability of the walls of the expanded disks to 18 flex and conform to the contours of the septal wall. 19 Dr. Gall is not referring to any flexibility 20 in the central portion of the ASO device -- 21 A. Correct. 22 Q. -- to allow lateral movement. 23 Is that right? 24 A. Correct. 25 Q. But when the words "ASO device" appear there,</p>	<p style="text-align: right;">Page 189</p> <p>1 A. 20. 2 Q. -- millimeters. 3 It's your opinion that it doesn't meet the 4 limitation of claim 23, because it doesn't have an 5 added helical bend or coil shape? 6 A. True. 7 Q. And that's also true for claim 30; is that 8 correct? 9 A. Correct. 10 Q. And on Page 24, you conclude that: Kotula 11 '552 does not disclose or teach any variations in the 12 shape of the central portion. 13 Do you see that? 14 A. Yes. 15 MR. ZAYED: Where are you? 16 MS. WANG: At the last sentence of the 17 second paragraph. 18 Are you there? 19 MR. ZAYED: Yes. 20 Q. (BY MS. WANG) Are you ready, Dr. Mullins? 21 Are you there? 22 A. Yes. 23 Q. And is that still your opinion today? 24 A. Yes. 25 Q. And you reached that opinion based on your</p>

48 (Pages 186 to 189)

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3/6/2013

Page 190

1 review of the Kotula '552 patent?

2 A. Yes.

3 Q. Did you review the prosecution history of the

4 Kotula '552 patent at all?

5 A. No. That was this thing (indicating)?

6 Q. No. That's the prosecution history of the

7 '738 patent. But the Kotula '552 patent --

8 A. I didn't read the prosecution, no.

9 Q. Okay. And is it your opinion that the Kotula

10 '552 patent only discloses an invention that has cup

11 disks?

12 MR. ZAYED: Object to form.

13 A. Probably not. Because there are pictures of

14 it. The first one the page doesn't show cup disks.

15 Q. (BY MS. WANG) So, is it fair to say that the

16 Kotula '552 patent discloses inventions that don't

17 require cup disks?

18 MR. ZAYED: Object to form.

19 A. I believe that's what I would assume from

20 looking at the patent.

21 Q. (BY MS. WANG) Now, if I could turn your

22 attention to Page 26. And at the very bottom of

23 page, you state: The '738 patent then explains that

24 the central portion exhibits a "spring-like action."

25 Do you see that?

Page 191

1 MR. ZAYED: Where are you?

2 MS. WANG: At the very bottom of

3 Page 26.

4 A. The last paragraph?

5 Q. (BY MS. WANG) Yes. The last paragraph, in

6 just the very last sentence: The '738 patent then

7 explains that the central portion exhibits

8 "spring-like action."

9 A. Correct.

10 Q. And you're -- when you say a "spring-like

11 action," are you talking about once it's fully

12 deployed?

13 A. Yes.

14 Q. And then, on Page 27, you go on to say: In

15 contrast, the Kotula '552 patent discloses a device

16 with the length of the central portion does not

17 stretch to adjust to the thickness of the atrial

18 septum; rather, the device is manufactured with a

19 central portion of a particular fixed length that is

20 intended to, when it's in its relaxed state,

21 approximate the thickness of a particular patient's

22 atrial septum.

23 A. Yes.

24 Q. And so, that's when we talked about the

25 various lengths -- you could vary the length.

Page 192

1 A. Length.

2 Q. And --

3 A. You have to pick it ahead of time.

4 Q. Right. You would pick it ahead of time, but

5 you could vary the length.

6 A. Yes.

7 Q. Is that right?

8 A. (Witness nods head.)

9 Q. And in varying the length doesn't necessarily

10 mean that you would have vary the size of the

11 occlusion disks; is that correct?

12 A. Correct.

13 MR. ZAYED: Would you read that last

14 question and answer back, please.

15 (The requested portion of the record

16 was read by the court reporter.)

17 Q. (BY MS. WANG) Then on Page 28, I think we've

18 talked about this a little bit before.

19 You assert that you would only be able to

20 distort the invention disclosed by the Kotula '552

21 patent -- you would only be able to stretch that

22 central portion of the Kotula '552 patent by

23 distorting the outer diameter portions.

24 Is that correct?

25 A. And with excessive force.

Page 193

1 Q. And when you say "with excessive force," do

2 you mean anything beyond --

3 A. Forces that you would never see within the

4 body or you would never be able to tolerate within

5 the body.

6 Q. Okay. But let me take a step back, because

7 we've talked about that a little bit.

8 You said that the stresses placed on the

9 tissues to withstand forces without distorting the

10 tissue; is that correct?

11 A. Correct.

12 Q. So, you used that definition when you said:

13 The degree of distortion is created with strong

14 non-physiological forces which would never be

15 encountered in the body.

16 So you would say any force that is above the

17 stresses placed on tissues to withstand forces

18 without distortion of the tissues would be

19 non-physiological force?

20 MR. ZAYED: Object to form.

21 A. Yes.

22 Q. (BY MS. WANG) And in terms of applying the

23 forces to the middle-facing surfaces of the enlarged

24 diameter portions as opposed to grasping the ends of

25 the Kotula '552 device, is it your opinion that you

49 (Pages 190 to 193)

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3/6/2013

Page 194

1 couldn't stretch that central portion without
2 distorting the enlarged diameter portions?

3 MR. ZAYED: Object to form.

4 A. Pretty much so, because the -- it's a
5 uni-structural device. And the central portion is
6 part of the disk. And if you pull it from the
7 inside, you start pulling the disk into it.

8 Q. (BY MS. WANG) And is it your position that
9 you wouldn't be able to create lateral movement from
10 the central portion with pressure applied from the
11 inside of the disks without distorting those outer
12 portions?

13 A. Again, with a couple of pairs of pliers and
14 moving it that way, I could. But not with forces
15 that you should ever see in the body.

16 Q. So -- just putting aside the forces that you
17 see in the body. And I --

18 A. How can you put it aside? That's where
19 you're using it.

20 Q. Okay.

21 A. You're not fixing holes in windows.

22 Q. Okay. So, that's the lens that you looked at
23 all of this information from?

24 A. Yes.

25 Q. And so, even though you could stretch it

Page 196

1 discussion that the Kotula is based on a
2 self-centering disk, which is the occluding portion
3 of the device. And the '738 dismisses that central
4 disk totally.

5 I mean, there's -- so, the whole basis of the
6 '552 is not involved.

7 Q. Okay. So, in your interpretation of the '738
8 device, as it's disclosed in the patent, the patent
9 dismisses the self-centering feature; is that right?

10 A. Correct. The '738 patent.

11 Q. That's right.

12 A. Yeah.

13 Q. And in your interpretation of the '552
14 patent, the '552 patent only applies -- only
15 discloses an invention that self-centers?

16 MR. ZAYED: Object to form.

17 A. There was some other variations of it. The
18 first or second diagram was for occluding a tubular
19 structure. So, no, it's -- there's some variations
20 in the Kotula patent.

21 Q. (BY MS. WANG) Okay. So, but, in the Kotula
22 '552 patent, with respect to atrial septal occluders,
23 you interpret the Kotula '552 patent as being limited
24 to self-centering?

25 A. Yes.

Page 195

1 apart using pliers, you discounted that because it
2 was a non-physiological force, based on your
3 definition?

4 MR. ZAYED: Object to form.

5 A. Not only non-physiologic. It's so excessive,
6 I mean, it's not -- it's not within reason.

7 Q. (BY MS. WANG) Okay. And what about putting
8 the force from the inside out, as opposed to pliers?

9 A. The same. You would have to have massive
10 force on it and it's going to start pulling the disks
11 in from the outside.

12 I mean, you're pulling it presumably with a
13 hole, with a septum like their demonstration septums,
14 a hard, rigid, fixed hole.

15 If you pull it apart, you're going to pull
16 the disks in from the outside to get length on the
17 central portion (indicating).

18 It's the same kind of forces you have to use
19 when you're stretching it out to load it.

20 Q. So, other than the reasons that we've
21 discussed from your report today, are there any other
22 reasons that we haven't discussed that you've based
23 your opinion that the Kotula '552 patent doesn't
24 anticipate claims 23 and 30?

25 A. Well, I think I've mentioned some of the

Page 197

1 Q. And prior to the Kotula '552 patent, which
2 was filed for -- on May 14th, 1996, there were
3 existing self-centering devices?

4 MR. ZAYED: Object to form.

5 A. There was not a usable self-centering device
6 prior to that.

7 Q. (BY MS. WANG) Okay.

8 A. The Das device, quote, self-centered, but
9 only after totally released in the body. It didn't
10 help in deploying it, so . . .

11 Q. Okay. But you would agree that prior to the
12 Kotula '552 patent, there was a -- there were
13 disclosures of self-centering devices?

14 A. Yes.

15 Q. So I just want to be complete before I move
16 off the Kotula '552 patent and make sure that I
17 understand what the parties' positions are.

18 And I'm just going to run through the
19 limitations of claims 20, 23, and 30, to make sure
20 that I understand your position.

21 A. Okay.

22 MR. ZAYED: Object to form.

23 He's not here to -- his position with
24 respect to what?

25 MS. WANG: To what's not disclosed in

50 (Pages 194 to 197)

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3/6/2013

<p style="text-align: right;">Page 198</p> <p>1 the prior reference. So, I think he is here exactly</p> <p>2 for that reason.</p> <p>3 MR. ZAYED: All right. Well --</p> <p>4 MS. WANG: Okay.</p> <p>5 A. 20, 23, and 30 of the '738 --</p> <p>6 MR. ZAYED: It's already been covered.</p> <p>7 It's asked and answered. We've covered for the last</p> <p>8 hour and a half of him going through each point of</p> <p>9 what's not disclosed in the '738.</p> <p>10 Q. (BY MS. WANG) Okay. So, just to be clear in</p> <p>11 summary, the Kotula '552 patent discloses a</p> <p>12 collapsible medical device?</p> <p>13 A. Correct.</p> <p>14 Q. And the Kotula '552 patent discloses two</p> <p>15 enlarged diameter portions?</p> <p>16 A. Correct.</p> <p>17 Q. The Kotula '552 patent discloses a central</p> <p>18 portion interconnecting two enlarged diameter</p> <p>19 portions, but it's your contention that that central</p> <p>20 portion is not flexible?</p> <p>21 MR. ZAYED: Object to form.</p> <p>22 A. It's flexible, but not elastic.</p> <p>23 Q. (BY MS. WANG) Okay. So it's -- the central</p> <p>24 portion of the Kotula '552 is flexible, but it's not</p> <p>25 elastic --</p>	<p style="text-align: right;">Page 200</p> <p>1 A. Correct.</p> <p>2 Q. (BY MS. WANG) All right. And the Kotula</p> <p>3 '552 patent discloses a device having a collapse</p> <p>4 configuration for delivery through a channel in the</p> <p>5 patient's body?</p> <p>6 A. Correct.</p> <p>7 Q. So, the Kotula '552 patent also discloses a</p> <p>8 flexible central portion that's -- that's resilient</p> <p>9 as it comes out of the catheter; is that right?</p> <p>10 MR. ZAYED: Object to form. Object to</p> <p>11 the use of the word "flexible."</p> <p>12 A. Yes.</p> <p>13 Q. (BY MS. WANG) But it doesn't disclose a</p> <p>14 device that is, in your opinion, resilient once it's</p> <p>15 fully deployed?</p> <p>16 MR. ZAYED: Object to form.</p> <p>17 Mischaracterizes his testimony. Mischaracterizes his</p> <p>18 expert report.</p> <p>19 A. Correct.</p> <p>20 Q. (BY MS. WANG) And the Kotula '552 patent</p> <p>21 discloses a device that has a central portion that</p> <p>22 returns to its preset configuration and disks that</p> <p>23 return to their preset configuration when it's</p> <p>24 deployed out of the catheter?</p> <p>25 MR. ZAYED: Object to form.</p>
<p style="text-align: right;">Page 199</p> <p>1 A. It can bend --</p> <p>2 Q. -- in that it's not stretchable?</p> <p>3 A. Yeah.</p> <p>4 Q. Okay. The Kotula '552 patent does not</p> <p>5 disclose an elastic central portion that allows</p> <p>6 lateral movement of each of the two enlarged diameter</p> <p>7 portions with respect to each other?</p> <p>8 A. Correct.</p> <p>9 MR. ZAYED: Object to form.</p> <p>10 Mischaracterizes the expert report, mischaracterizes</p> <p>11 his testimony, incomplete, improper.</p> <p>12 Q. (BY MS. WANG) The Kotula '552 patent</p> <p>13 discloses a device with a proximal end and a distal</p> <p>14 end?</p> <p>15 A. Correct.</p> <p>16 Q. And on the Kotula '552 device, what are --</p> <p>17 what is the proximal end and the distal end of the</p> <p>18 device?</p> <p>19 A. The two disks.</p> <p>20 Q. The two disks? Okay.</p> <p>21 And then, on -- the Kotula '552 patent</p> <p>22 discloses at least one of the proximal or distal end</p> <p>23 includes a means for securing the said device to the</p> <p>24 delivery system?</p> <p>25 MR. ZAYED: Object to form.</p>	<p style="text-align: right;">Page 201</p> <p>1 A. Correct.</p> <p>2 Q. (BY MS. WANG). And I think, with respect to</p> <p>3 claim 30, it's your opinion that the Kotula '552</p> <p>4 patent doesn't disclose a flexible central portion</p> <p>5 that stretches once it's fully deployed?</p> <p>6 A. Correct.</p> <p>7 MR. ZAYED: Object to form. Object to</p> <p>8 the mischaracterization of the expert report. Object</p> <p>9 to your summary. Object to trying to limit his</p> <p>10 testimony to a summary recitation of the claims.</p> <p>11 Completely improper.</p> <p>12 Q. (BY MS. WANG) Before we move away from the</p> <p>13 Kotula '552 patent and the '738 patent, could you</p> <p>14 take those out for me, please?</p> <p>15 A. I've got them right here.</p> <p>16 Q. I think it's your opinion, if you focus on</p> <p>17 the -- the '738 patent, and Exhibit -- which is</p> <p>18 Exhibit 101, I think it's your opinion in the report</p> <p>19 that the AGA devices don't embody either claims 23 or</p> <p>20 30?</p> <p>21 MR. ZAYED: Object to form.</p> <p>22 Q. (BY MS. WANG) Is that right?</p> <p>23 MR. ZAYED: It's not an opinion. The</p> <p>24 expert report states what it states.</p> <p>25 Q. (BY MS. WANG) Well, let me rephrase it so</p>

51 (Pages 198 to 201)

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3/6/2013

<p style="text-align: right;">Page 202</p> <p>1 that AGA's counsel might be more comfortable.</p> <p>2 You've assumed for the purpose of your expert</p> <p>3 report that the AGA devices do not embody claims 23</p> <p>4 and 30; is that correct?</p> <p>5 A. Yes.</p> <p>6 Q. And you've assumed for the purposes of your</p> <p>7 report that the AGA cribriform device embodies claim</p> <p>8 20 of the '738 patent?</p> <p>9 A. This was qualified in that minimal lateral</p> <p>10 movement.</p> <p>11 Q. And when you say "qualified in minimal</p> <p>12 lateral movement," what do you mean?</p> <p>13 MR. ZAYED: Object to form.</p> <p>14 He was -- he's not here to opine as to</p> <p>15 whether the device -- the cribriform is covered or</p> <p>16 not covered. He made an assumption and that's as far</p> <p>17 as it goes.</p> <p>18 You're instructed not to answer</p> <p>19 anything further.</p> <p>20 MS. WANG: So, you're instructing him</p> <p>21 not to answer whether or not the cribriform device</p> <p>22 embodies claim 20?</p> <p>23 MR. ZAYED: Where's -- find me where</p> <p>24 in his opinion he talks about that.</p> <p>25 MS. WANG: He talks about it in the</p>	<p style="text-align: right;">Page 204</p> <p>1 "shaped to form"?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 Claim 23 states what it states. Claim</p> <p>4 20 states what it states.</p> <p>5 A. 20, I don't think -- does it say "shaped to</p> <p>6 form"?</p> <p>7 The combination of the two, yes.</p> <p>8 Q. (BY MS. WANG) Okay.</p> <p>9 MR. ZAYED: Can we take a short break?</p> <p>10 MS. WANG: Sure.</p> <p>11 THE VIDEOGRAPHER: The time is 2:26</p> <p>12 and we're off the record.</p> <p>13 (Break.)</p> <p>14 THE VIDEOGRAPHER: This is the</p> <p>15 beginning of Tape No. 5 to the deposition of</p> <p>16 Dr. Mullins. The time is 2:38 and we're on the</p> <p>17 record.</p> <p>18 Q. (BY MS. WANG) Dr. Mullins, you also have an</p> <p>19 opinion in this case that it wouldn't be obvious to</p> <p>20 change the device disclosed in the '738 patent to the</p> <p>21 device disclosed in the -- I'm sorry, the device</p> <p>22 disclosed in the Kotula '552 patent to the device</p> <p>23 disclosed in the '738 patent; is that right?</p> <p>24 A. That's correct.</p> <p>25 Q. And if you turn to Page 74 of your report.</p>
<p style="text-align: right;">Page 203</p> <p>1 secondary considerations --</p> <p>2 MR. ZAYED: For --</p> <p>3 MS. WANG: -- where he talks about</p> <p>4 commercial success.</p> <p>5 MR. ZAYED: What does he say? Let's</p> <p>6 find that specific language of what he says then.</p> <p>7 MS. WANG: "I have been told that</p> <p>8 AGA's cribriform device embodies at least claim 20 of</p> <p>9 the '738 patent."</p> <p>10 MR. ZAYED: Okay. He's been told.</p> <p>11 That's as far as that goes.</p> <p>12 Q. (BY MS. WANG) So, Dr. Mullins, for the</p> <p>13 purposes of your expert report, you simply assumed</p> <p>14 and accepted what you were told, that the cribriform</p> <p>15 device embodies at least claim 20 of the '738 patent?</p> <p>16 MR. ZAYED: That's a "yes" or "no"</p> <p>17 answer.</p> <p>18 A. That's "yes."</p> <p>19 Q. (BY MS. WANG) Okay. And you assumed for the</p> <p>20 purposes of your report that the cribriform device</p> <p>21 exhibited all of the limitations of claim 20?</p> <p>22 MR. ZAYED: That's a "yes" or "no".</p> <p>23 A. Yes.</p> <p>24 Q. (BY MS. WANG) And the difference between</p> <p>25 claim 20 and 23, in part, is based on the term,</p>	<p style="text-align: right;">Page 205</p> <p>1 A. Okay.</p> <p>2 Q. That's when you talk about your opinions with</p> <p>3 respect to whether Kotula '552 alone renders the</p> <p>4 asserted claims 23 and 30 of the '738 patent as</p> <p>5 obvious.</p> <p>6 A. Okay.</p> <p>7 Q. Is that correct?</p> <p>8 A. Correct.</p> <p>9 Q. And when you determined whether or not Kotula</p> <p>10 '552 rendered the 7 -- the claims 23 and 30 of the</p> <p>11 '738 patent as obvious, you applied the legal</p> <p>12 principles that are set out in your report that were</p> <p>13 provided to you by counsel?</p> <p>14 MR. ZAYED: Object to form.</p> <p>15 A. Correct.</p> <p>16 Q. (BY MS. WANG) So, in this opinion, you say:</p> <p>17 It's my -- it is my -- this is the third sentence if</p> <p>18 the first paragraph:</p> <p>19 It is my opinion that the statements from the</p> <p>20 reference that Dr. Gorman cites regarding the use of</p> <p>21 wires with varying pick and pitch are taken out of</p> <p>22 the context; adjusting these parameters may affect</p> <p>23 flexibility of the Kotula '552 device such that ease</p> <p>24 of the collapsing into a catheter and thus delivery</p> <p>25 would be improved, but there is not suggestion</p>

52 (Pages 202 to 205)

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<p style="text-align: right;">Page 206</p> <p>1 whatsoever that a central portion could be flexible</p> <p>2 so as to allow the disks to be offset from one</p> <p>3 another and move laterally.</p> <p>4 MR. ZAYED: Again, where are we?</p> <p>5 A. Where are we?</p> <p>6 MS. WANG: I'm on Page 76.</p> <p>7 MR. ZAYED: You told us 74 and 75.</p> <p>8 There's nothing there.</p> <p>9 MS. WANG: Oh, I'm sorry.</p> <p>10 A. Excuse me. Okay.</p> <p>11 Q. (BY MS. WANG) It's the third sentence in the</p> <p>12 first paragraph.</p> <p>13 A. Uh-huh.</p> <p>14 Q. And it starts, "it is my opinion."</p> <p>15 A. Yep.</p> <p>16 Q. Okay. So, you say you think that: The</p> <p>17 statements that Dr. Gorman relies upon regarding the</p> <p>18 use of wires with varying pick and pitch are taken</p> <p>19 out of context; adjusting these parameters may affect</p> <p>20 the flexibility of the Kotula device such that ease</p> <p>21 of collapsing into a catheter and thus delivery could</p> <p>22 be improved but there is no suggestion whatsoever</p> <p>23 that a central portion could be flexible so as to</p> <p>24 allow the disks to be offset from one another and</p> <p>25 move laterally with respect to each other.</p>	<p style="text-align: right;">Page 208</p> <p>1 Q. And again, that "added shape" that we're</p> <p>2 talking about in your opinion as a person of ordinary</p> <p>3 skill in the art, is the spiral, coil, bend, or the</p> <p>4 helical coil?</p> <p>5 A. Correct.</p> <p>6 Q. And then lower down on Page 80, you state:</p> <p>7 Kotula '552 does not disclose or teach any variation</p> <p>8 in the shape of the central portion.</p> <p>9 Do you see that statement? It's at the very</p> <p>10 bottom of page -- or the second paragraph of Page 80.</p> <p>11 It's the last sentence in the second paragraph.</p> <p>12 A. Okay.</p> <p>13 Q. Do you see that statement?</p> <p>14 A. I think I'm there, yeah.</p> <p>15 Q. And --</p> <p>16 MR. ZAYED: I don't -- I don't see it.</p> <p>17 Where?</p> <p>18 MS. WANG: On Page 80, the last</p> <p>19 sentence, and the second paragraph.</p> <p>20 Kotula '552 does not disclose or teach</p> <p>21 any variation -- are you there, R.J.?</p> <p>22 MR. ZAYED: I am. I think I'm going</p> <p>23 to object to this continued reference to a specific</p> <p>24 sentence in a specific paragraph.</p> <p>25 Dr. Mullins, take all the time you</p>
<p style="text-align: right;">Page 207</p> <p>1 Is that right?</p> <p>2 A. Yes.</p> <p>3 Q. There isn't a cite to the Kotula '552 patent</p> <p>4 specifically. So, is it fair to say that you came to</p> <p>5 that conclusion based on your general reading of the</p> <p>6 Kotula '552 patent?</p> <p>7 MR. ZAYED: Object to form.</p> <p>8 A. Correct.</p> <p>9 Q. (BY MS. WANG) And is it -- and then turning</p> <p>10 to Page 80, in that first paragraph, you state: I</p> <p>11 have stated previously, I interpret the plain and</p> <p>12 ordinary meaning of the phrase "shaped to form" to</p> <p>13 require a central portion having an added shape that</p> <p>14 allows the two enlarged diameter portions to pull</p> <p>15 together -- to pull toward each other more than they</p> <p>16 would without the added shape (claim 23) or having an</p> <p>17 added shape that allows the central portion to</p> <p>18 stretch more than it would without the added shape</p> <p>19 (claim 30).</p> <p>20 It is my opinion that nothing in the</p> <p>21 disclosure teaches such a claimed flexible portion or</p> <p>22 discloses any suggestion or motivation for such a</p> <p>23 claimed flexible central portion.</p> <p>24 Do you see that statement?</p> <p>25 A. Correct.</p>	<p style="text-align: right;">Page 209</p> <p>1 need to put that sentence in context. This has been</p> <p>2 going on at length. It's been bothersome even</p> <p>3 locating these paragraph sentences.</p> <p>4 Q. (BY MS. WANG) Are you there, Dr. Mullins?</p> <p>5 A. I think. "Kotula does not disclose" --</p> <p>6 Q. "Or teach any" --</p> <p>7 A. -- "any" -- yeah.</p> <p>8 Q. -- "variations in shape of the central</p> <p>9 portion."</p> <p>10 A. Correct.</p> <p>11 Q. And again, you don't have a specific citation</p> <p>12 to the Kotula '552 patent.</p> <p>13 So, is it fair to say that you reached this</p> <p>14 conclusion by reviewing of the entire disclosure --</p> <p>15 A. Entire.</p> <p>16 Q. -- of the Kotula 522 --</p> <p>17 A. Correct.</p> <p>18 Q. -- patent?</p> <p>19 A. Yes.</p> <p>20 Q. Based on our discussion today about the</p> <p>21 "added shape," I think you previously testified that</p> <p>22 the added shapes that you considered to meet the</p> <p>23 limitations of claims 23 and 30 were the ones that</p> <p>24 were specifically disclosed in the '738 patent.</p> <p>25 So the helical shape, the coil shape, and the</p>

53 (Pages 206 to 209)

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3/6/2013

<p style="text-align: right;">Page 210</p> <p>1 bend shape?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 A. Bend.</p> <p>4 Q. (BY MS. WANG) Is that right?</p> <p>5 A. Yes.</p> <p>6 Q. And you didn't consider any other shapes in</p> <p>7 rendering your opinion?</p> <p>8 A. I didn't think about it, no.</p> <p>9 Q. Now, taking -- I'm going to have you look at</p> <p>10 Gu 101. So that's the '738 patent.</p> <p>11 A. Okay.</p> <p>12 Q. And then Figure 17 of the 55 -- the Kotula</p> <p>13 '552 patent.</p> <p>14 A. Figure 17 of the --</p> <p>15 Q. The Kotula '552 patent.</p> <p>16 A. But what are we looking at in 55 -- in the</p> <p>17 '738?</p> <p>18 Q. Figure 8.</p> <p>19 A. Figure 8.</p> <p>20 Q. Or actually, Figure 11.</p> <p>21 MR. ZAYED: What?</p> <p>22 Q. (BY MS. WANG) So look at Figure 11 of Gu,</p> <p>23 101, which is the '738 patent.</p> <p>24 A. Okay, right.</p> <p>25 Q. And Figure 17 of the Kotula '552 patent.</p>	<p style="text-align: right;">Page 212</p> <p>1 A. Yes.</p> <p>2 Q. Okay. And is that something that you,</p> <p>3 yourself, developed, or was that something that AGA's</p> <p>4 counsel told you to assume?</p> <p>5 A. I developed it. Because there's no way it</p> <p>6 stretches or bends or does any of the embodiments of</p> <p>7 the -- I mean, the specifications of the patent.</p> <p>8 Q. Okay. So, you, independently, came to the</p> <p>9 conclusion that Figure 11 doesn't embody claims 23 or</p> <p>10 30?</p> <p>11 A. Yes.</p> <p>12 Q. Okay. And so, in your opinion, you didn't</p> <p>13 make any analysis with respect to what it would take</p> <p>14 to get from the disclosure of the Kotula '552 patent</p> <p>15 Figure 17 to Figure 11 in the '738 patent?</p> <p>16 MR. ZAYED: Object to form.</p> <p>17 Instruct you not to answer.</p> <p>18 It's not included in his report. He's</p> <p>19 not here to opine about other things.</p> <p>20 Q. (BY MS. WANG) Okay. So you're not here</p> <p>21 today to opine about the steps it would take to go</p> <p>22 from -- for a person of ordinary skill in the art to</p> <p>23 go from Figure 17 in the Kotula '552 patent to</p> <p>24 Figure 11 in the '738 patent?</p> <p>25 MR. ZAYED: Objection, not relevant to</p>
<p style="text-align: right;">Page 211</p> <p>1 A. Okay.</p> <p>2 Q. So, Dr. Mullins, as a person of ordinary</p> <p>3 skill in the art, can you describe for me what steps</p> <p>4 you would have to take to convert Figure 17 of the</p> <p>5 Kotula '552 into Figure 11 of the '738 patent?</p> <p>6 A. Figure 11 really isn't a manifestation of the</p> <p>7 coils or the loops or any of the changes. It's</p> <p>8 not --</p> <p>9 MR. ZAYED: Yeah.</p> <p>10 A. -- it's not a -- epitome of the patent as</p> <p>11 it's described.</p> <p>12 MR. ZAYED: And I object to form and I</p> <p>13 instruct you not to answer.</p> <p>14 That's not even a claim at issue in</p> <p>15 this case.</p> <p>16 MS. WANG: I'm sorry?</p> <p>17 MR. ZAYED: That's not part of his</p> <p>18 opinion. He's not here to render an opinion as to</p> <p>19 Figure 11, which is not an embodiment of claim 23 or</p> <p>20 30.</p> <p>21 Q. (BY MS. WANG) Okay. So let me back up and</p> <p>22 just clarify the record. Okay.</p> <p>23 It's -- is it your -- have you -- is it your</p> <p>24 independent position that Figure 11 is not an</p> <p>25 embodiment of claims 23 and 30?</p>	<p style="text-align: right;">Page 213</p> <p>1 this case.</p> <p>2 A. Figure 11 is, again -- that's a Kotula</p> <p>3 device. I -- I would be -- say to go from Figure 17</p> <p>4 to Figure 10, or Figure 9, yeah, I had lots of</p> <p>5 thought. You rebuild a whole new device.</p> <p>6 Q. (BY MS. WANG) Okay. So I just need a</p> <p>7 specific answer to this question. And I'm not trying</p> <p>8 to make you answer the question.</p> <p>9 I just need to know that you don't have</p> <p>10 opinions sitting here today of what it would take for</p> <p>11 a person of ordinary skill in the art to get from</p> <p>12 Figure 17 of the Kotula '552 patent to Figure 11 of</p> <p>13 the '738 patent?</p> <p>14 A. I didn't consider it.</p> <p>15 Q. Okay. And sitting here today, as a person of</p> <p>16 ordinary skill in the art, you did -- you also didn't</p> <p>17 consider what it would take to get from Figure 17 in</p> <p>18 the Kotula '552 patent to Figure 8 in the Kotula</p> <p>19 '552 -- in the '738 patent?</p> <p>20 A. Same figure, essentially. No.</p> <p>21 Q. You didn't consider it?</p> <p>22 MR. ZAYED: Well, the patent says that</p> <p>23 Figure 11 is Figure 8, the '738 patent. So -- the</p> <p>24 '738 patent specifically references Figure 11 as</p> <p>25 being Figure 8.</p>

54 (Pages 210 to 213)

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3/6/2013

Page 214

1 MS. WANG: Okay. Well --
 2 MR. ZAYED: So --
 3 MS. WANG: -- you don't need to
 4 testify, Mr. Zayed.
 5 MR. ZAYED: I'm not.
 6 MS. WANG: I just want to make sure
 7 that he's not going to render an opinion. That's all
 8 I'm trying to get.
 9 I'm not trying to get him to render
 10 any new opinions. I'm trying to understand that he
 11 doesn't have an opinion about that.
 12 So, if you'll just let me proceed, we
 13 can make this go a lot quicker.
 14 MR. ZAYED: You're not making it go
 15 quicker. You're wasting a lot of time, Counsel.
 16 MS. WANG: So -- thank you.
 17 Q. (BY MS. WANG) Dr. Mullins, did you ever
 18 consider what it would take to get from the Figure 17
 19 in the Kotula '552 patent to Figure 12 in the '738
 20 patent?
 21 A. No, it's the same -- same argument. I think
 22 that's -- Figure 12 is an impossibility.
 23 Like the --
 24 MR. ZAYED: Dr. Mullins --
 25 A. -- Amplatz --

Page 215

1 MR. ZAYED: Dr. Mullins, there's no
 2 question -- there is no question pending. Do not
 3 answer any further.
 4 Q. (BY MS. WANG) Okay. So, let's put those
 5 aside for right now.
 6 You also have an opinion that the ASO device
 7 itself does not anticipate the claims of 23 and 30 of
 8 the '738 patent?
 9 A. Correct.
 10 Q. Is that right?
 11 A. Yes.
 12 Q. And you considered that some of the ASO
 13 devices that you examined were embodiments of the
 14 Kotula '552 patent; is that right?
 15 MR. ZAYED: Object to form.
 16 A. I presumed. They looked similar.
 17 Q. (BY MS. WANG) You presumed. Were you told
 18 that, to assume that, by AGA's counsel?
 19 A. No, they were -- I was told they were
 20 prototype ASO devices.
 21 Q. On the top of Page 29, you say: It's my --
 22 it was -- it's my understanding that AGA's ASO
 23 devices do not qualify as prior art because they were
 24 not used publicly or on sale in the United States
 25 more than one year prior to the filing of the '738

Page 216

1 patent.
 2 Do you see that?
 3 A. Correct.
 4 Q. And were you told to assume that by AGA's
 5 counsel?
 6 A. I was given the dates.
 7 Q. And when you say you were "given the dates,"
 8 what do you mean?
 9 A. The dates of patent, the dates of the -- the
 10 ASO device.
 11 Q. Okay. But you didn't do any independent
 12 investigation as to whether or not the ASO device was
 13 publicly shown?
 14 A. No.
 15 Q. And you didn't do any independent
 16 investigation of whether or not the ASO was on sale
 17 in the United States prior to the filing date of the
 18 '738 patent?
 19 A. No, I didn't do any investigation.
 20 Q. And do you have an understanding that "on
 21 sale" has a special meaning in patent terminology?
 22 A. No.
 23 Q. Okay. So, you didn't apply any legal
 24 principles to make the statement that the AGA ASO
 25 devices were not on sale in the United States?

Page 217

1 A. No.
 2 Q. Okay. So, you had an opportunity to examine
 3 each of the ASO prototypes; is that correct?
 4 A. Correct.
 5 Q. And you were present during the inspection of
 6 the AGA ASO prototypes?
 7 A. You're right.
 8 Q. And you've included some of the photographs
 9 that were part of either the production made by AGA
 10 or the inspection performed in December of 2012; is
 11 that right?
 12 A. Correct.
 13 Q. And again, to the best of your ability, your
 14 report, with respect to the ASO device is complete.
 15 You've stated all the facts and bases of your
 16 opinions in this report?
 17 A. Yes.
 18 Q. And there's nothing about what you state in
 19 the section related to the ASO device that you want
 20 to correct or amend before we begin?
 21 A. No.
 22 Q. So, at the bottom of Page 32 to the top of
 23 Page 33, you also -- you say again: Based on my
 24 observations, it's my opinion that the central
 25 portion of each of the devices is not flexible to

55 (Pages 214 to 217)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 218</p> <p>1 permit lateral movement without unreasonable 2 non-physiological forces. 3 A. Correct. 4 Q. And that's the same non-physiological forces 5 that we've been talking about all day today; is that 6 right? 7 A. Absolutely. 8 Q. Now, then on Page 33, you say: I can create 9 significant lateral movement using two pairs of 10 pliers grasping the clamps of the disks and forcing 11 them out of alignment, but only with a force that 12 greatly exceed the reasonable physiological forces a 13 device would experience in the body. 14 Is that right? 15 A. Correct. 16 Q. And the physiological forces a device would 17 experience in the body are the same contractions and 18 the hemodynamic forces we talked about before? 19 A. No. Just the forces against the septal wall 20 that -- you can't put that much force on it against 21 the wall without massively distorting the septal 22 wall. 23 It doesn't have anything to do with the 24 motion of the heart or the blood flow. It's a matter 25 of being able to position it in the septum.</p>	<p style="text-align: right;">Page 220</p> <p>1 MR. ZAYED: Object to form. 2 And again, I'm going to object to the 3 continued referring to middle of paragraphs and then 4 immediately jumping into questions without giving 5 Dr. Mullins the opportunity to place it in context. 6 Q. (BY MS. WANG) Dr. Mullins, you should take 7 the time you need to read whatever you need. 8 A. Well, I know what I was thinking and what I 9 talked about on this one. 10 Q. Okay. So, go ahead. 11 A. And I think I can answer this. 12 When you're looking at two disks flat on, it 13 takes 5 degrees of movement and all of a sudden this 14 disk is eccentric. 15 Is that lateral movement (indicating)? Now 16 it's not (indicating). 17 So that I don't have any reference that tells 18 me that every one of those pictures was absolutely 19 straight on; there was no 5- or 10-degree angle from 20 that photographer's shooting down at the pictures. 21 When you look at it from the side, you can 22 see if there's lateral movement, if you're exactly 23 perpendicular to it. But from the AP view, or 24 frontal view, again, you can see this finger. And 25 that's 5 degrees of angulation (indicating).</p>
<p style="text-align: right;">Page 219</p> <p>1 Q. So, I guess I'm having a little bit of 2 trouble understanding that, because doesn't the 3 device -- when you say "exceeds the reasonable 4 physiological forces a device would experience in the 5 body," are you only talking about the physiological 6 force that the septum creates? 7 A. Yes. 8 Q. And you're not talking about the 9 physiological forces of the contractions of the 10 heart? 11 A. No. 12 Q. And you're not talking about at hemodynamics 13 of the heart? 14 A. No. 15 Q. Then on the bottom of Page 33, you say: In 16 addition, the photographs included as evidence of 17 lateral movement were all taken from an apparent 18 head-on angle work at central portion hidden behind 19 one of the disks. There were no straight lateral 20 views. 21 A. Correct. 22 Q. Do you see that statement? 23 A. Correct. 24 Q. And can you explain to me why that's an issue 25 for you?</p>	<p style="text-align: right;">Page 221</p> <p>1 So the pictures don't tell me anything. 2 Q. So, is it -- it's -- is it the fact that you 3 can't see the central portion of the device? 4 A. Correct. You can't see -- and you can't -- 5 you have no reference to what the angle is of the two 6 disks from a straight AP view, or nearly straight AP 7 view. You don't know that it's exactly 8 perpendicular. 9 Q. Okay. But you were present at the 10 inspection, weren't you? 11 A. I was. That makes me even more impressed 12 that it doesn't show us anything. 13 Q. And -- and at the time of the inspection, I 14 don't recall you raising any objection to the way 15 that the photographs were being taken? 16 A. I didn't -- 17 MR. ZAYED: Object to form. 18 Are you going to be testifying? Do I 19 need to take your deposition? 20 MS. WANG: Do you want me to ask it a 21 differently? 22 Q. (BY MS. WANG) Dr. Mullins, at the 23 inspection, did you raise any objection to the manner 24 in which the photographs were taken? 25 A. I didn't know --</p>

56 (Pages 218 to 221)

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3/6/2013

<p style="text-align: right;">Page 222</p> <p>1 MR. ZAYED: Object to form.</p> <p>2 A. I thought I was an observer.</p> <p>3 Q. Okay.</p> <p>4 MR. ZAYED: He was an observer.</p> <p>5 There's no reason for him to raise objections, no</p> <p>6 duty to tell you that you're doing things wrong.</p> <p>7 Q. (BY MS. WANG) And at the inspection, did you</p> <p>8 request any different photographs to be taken?</p> <p>9 A. No.</p> <p>10 Q. And in your work as an expert for AGA, have</p> <p>11 you personally taken any photographs of the ASO</p> <p>12 devices?</p> <p>13 A. No. If I had made suggestions, show them how</p> <p>14 to do it correctly, they might have been able to show</p> <p>15 it.</p> <p>16 Q. And then it says: Changes in the angle --</p> <p>17 MR. ZAYED: Where are you?</p> <p>18 A. Where are you?</p> <p>19 Q. (BY MS. WANG) If you start right after where</p> <p>20 we finished --</p> <p>21 A. Okay.</p> <p>22 Q. -- at the bottom of Page 33: Slight changes</p> <p>23 in the angle on the head-on view may give the</p> <p>24 illusion of offset disks, both visually and on X-ray.</p> <p>25 But the photographs do not demonstrate that there's</p>	<p style="text-align: right;">Page 224</p> <p>1 that you looked at from the Jessie Edwards registry</p> <p>2 were the ones included in Dr. Javois' report?</p> <p>3 A. Yeah, the ones they picked as the best.</p> <p>4 Q. Right. Okay.</p> <p>5 Then you go on to say in the bottom of</p> <p>6 Page 34: A mere tilting of the device caused by the</p> <p>7 emergence of one side of the second disks -- so, do</p> <p>8 you see that sentence? It's the second sentence</p> <p>9 below the two images.</p> <p>10 MR. ZAYED: Are you picking up now in</p> <p>11 the middle of a sentence, rather than starting at the</p> <p>12 beginning?</p> <p>13 MS. WANG: I'll start at the</p> <p>14 beginning. That's fair.</p> <p>15 Q. (BY MS. WANG) It's the second full</p> <p>16 sentence --</p> <p>17 A. Where we -- "what the report contends"?</p> <p>18 Q. Yeah.</p> <p>19 A. Okay.</p> <p>20 Q. "What the report contends is 'lateral offset</p> <p>21 of the discs' [sic] as the device is pushed out of</p> <p>22 the catheter" --</p> <p>23 A. Right.</p> <p>24 Q. -- "is actually merely a tilting of the</p> <p>25 device caused by the emergence of one side of the</p>
<p style="text-align: right;">Page 223</p> <p>1 any lateral movement occurring from the reasonable</p> <p>2 physiological forces that result of the flexibility</p> <p>3 of the central portion of the device.</p> <p>4 Do you see that statement?</p> <p>5 A. Yes.</p> <p>6 Q. And so, when you say "both visually and on</p> <p>7 X-ray," what are you referring to?</p> <p>8 A. Well, the previous -- there also were X-rays</p> <p>9 from the Jessie Edwards studies. And both of them</p> <p>10 have the same problem.</p> <p>11 Q. Okay. At any time have you inspected the</p> <p>12 specimens at Jessie Edwards registry?</p> <p>13 A. No.</p> <p>14 Q. And -- but you -- did you look at any</p> <p>15 photographs from the Jessie Edwards registry other</p> <p>16 than the photographs that were in Dr. Javois' report?</p> <p>17 A. No, just the ones in the report.</p> <p>18 Q. And did you look at any images at all from</p> <p>19 the Jessie Edwards registry other than what was in</p> <p>20 Dr. Javois' report?</p> <p>21 A. No. There were a lot of X-ray images, in</p> <p>22 addition to photographs.</p> <p>23 Q. So --</p> <p>24 A. And I looked at those.</p> <p>25 Q. But it's fair to say that the only images</p>	<p style="text-align: right;">Page 225</p> <p>1 second disc, while the other side of the disc remains</p> <p>2 lodged in the catheter. In other words, it's merely</p> <p>3 the non-symmetric emergence of the enlarged diameter</p> <p>4 portion that caused the tilting seen in the video</p> <p>5 frames."</p> <p>6 "It's my opinion that these frames should not</p> <p>7 demonstrate a fully deployed device or lateral</p> <p>8 movement of the disks.</p> <p>9 Do you see that?</p> <p>10 A. Correct.</p> <p>11 Q. What did you mean by that?</p> <p>12 A. One disk is still squinched down in the</p> <p>13 catheter. So that doesn't count for lateral movement</p> <p>14 without distortion of the disks. So it doesn't show</p> <p>15 anything.</p> <p>16 Q. Okay. Because the device isn't fully</p> <p>17 deployed --</p> <p>18 A. Correct.</p> <p>19 Q. -- inside a human heart?</p> <p>20 A. Or even deployed in a space.</p> <p>21 Q. Okay. Did you watch the entire video or did</p> <p>22 you only look at the frames included in Dr. Javois'</p> <p>23 report.</p> <p>24 A. This was the video -- I looked at one video,</p> <p>25 but I'm not sure this is the exact one. I looked at</p>

57 (Pages 222 to 225)

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3/6/2013

<p style="text-align: right;">Page 226</p> <p>1 all the frames, but I didn't look at the rest of it.</p> <p>2 Q. Okay. So, you can't be sure, sitting here</p> <p>3 today, that you've seen the entire video that is</p> <p>4 reflected in these frames?</p> <p>5 A. No. I would only assume that these are the</p> <p>6 best frames they could pick out of the video.</p> <p>7 Q. That's fine. And if you had watched the</p> <p>8 entire video, would it be listed in your list of</p> <p>9 exhibits considered?</p> <p>10 A. Yes.</p> <p>11 Q. While my colleague is looking for the next</p> <p>12 document, can I turn your attention to Page 37?</p> <p>13 A. All right.</p> <p>14 Q. And you say, in addition -- at the bottom of</p> <p>15 the first paragraph, you say: In addition, I</p> <p>16 understand that this describes the work of</p> <p>17 Dr. Amplatz, the inventor of the '738 patent, and is</p> <p>18 thus not prior art under 102(a) or 102(b)?</p> <p>19 A. Correct.</p> <p>20 Q. Do you see that?</p> <p>21 And is it correct to say that you didn't do</p> <p>22 an independent analysis of whether Sharrafuddin was</p> <p>23 prior art under 102(a) or 102(b), but AGA's counsels</p> <p>24 told you that?</p> <p>25 A. I think they told me what the numbers were.</p>	<p style="text-align: right;">Page 228</p> <p>1 A. It's a picture of one of the prototype ASO</p> <p>2 devices -- I don't remember -- it doesn't state which</p> <p>3 one, I don't think -- at any rate, in the two rigid</p> <p>4 plastic frames being forcibly displaced.</p> <p>5 But again, it is in the anterior/posterior</p> <p>6 view. And a little bit of angle will give me this</p> <p>7 much displacement. So it doesn't show me anything.</p> <p>8 It does show one disk eccentric from the</p> <p>9 other. But I don't know if that's at angle or this</p> <p>10 angle (indicating).</p> <p>11 Q. Okay. So, what you're unsure about is</p> <p>12 what -- from what angle the pictures --</p> <p>13 A. Right.</p> <p>14 Q. -- is being taken from?</p> <p>15 A. And there's no straight lateral view of this,</p> <p>16 which would show if there is displacement.</p> <p>17 Q. Okay. I'm going to hand you what's being</p> <p>18 marked as Exhibit 299.</p> <p>19 (Exhibit 299 is marked.)</p> <p>20 Q. (BY MS. WANG) Have you seen Exhibit 299</p> <p>21 before?</p> <p>22 A. Yes, I have.</p> <p>23 Q. And in your opinion, is this not a straight</p> <p>24 lateral view of the device?</p> <p>25 A. I have the exact same comment. If you look</p>
<p style="text-align: right;">Page 227</p> <p>1 Q. Okay. But is it your position that you did</p> <p>2 an independent analysis of --</p> <p>3 A. No.</p> <p>4 Q. -- whether or not -- okay. So let me just be</p> <p>5 clear so the record is clear.</p> <p>6 So, you were told to assume that Sharrafuddin</p> <p>7 was not prior art under 102(a) or 102(b); is that</p> <p>8 correct?</p> <p>9 A. Correct. Because of the dates and</p> <p>10 publication and because of the senior author being</p> <p>11 Amplatz.</p> <p>12 (Discussion off the record.)</p> <p>13 MS. WANG: Could you tell me what</p> <p>14 exhibit we're on?</p> <p>15 THE REPORTER: I have the last one</p> <p>16 marked as 297.</p> <p>17 Q. (BY MS. WANG) Okay. I'm going to hand you</p> <p>18 what's being marked as Exhibit 298 to the deposition.</p> <p>19 (Exhibit 298 is marked.)</p> <p>20 Q. (BY MS. WANG) Do you recognize this</p> <p>21 photograph?</p> <p>22 A. Yes.</p> <p>23 Q. Okay. And can you identify it for the</p> <p>24 record?</p> <p>25 MR. ZAYED: Object to form.</p>	<p style="text-align: right;">Page 229</p> <p>1 at the pin on this device, it's angled. So, you're</p> <p>2 not looking down the middle of it. The other device,</p> <p>3 you can't tell. But this one is definitely not a</p> <p>4 straight AP.</p> <p>5 Q. Okay. Can I turn your attention to Page 41</p> <p>6 of your report. And I'm fine, depending on</p> <p>7 probably -- your counsel will probably want to do</p> <p>8 this.</p> <p>9 I'm going to be asking you questions about</p> <p>10 the Sharrafuddin article. So if you would like the</p> <p>11 Sharrafuddin article in front of you -- it doesn't</p> <p>12 appear to be in our box, so we'll move to something</p> <p>13 else and then come back to that.</p> <p>14 Does that make sense?</p> <p>15 A. Yeah, that's fine. I have looked at the</p> <p>16 article, but . . .</p> <p>17 Q. Okay. Well why don't we do -- why don't we</p> <p>18 go to something else and then come back --</p> <p>19 A. All right.</p> <p>20 Q. -- so that I can make sure that the record is</p> <p>21 clear that you have the article available to you.</p> <p>22 MS. WANG: Oh, you did find it. Okay.</p> <p>23 Q. (BY MS. WANG) So I'm going to hand you</p> <p>24 what's being marked as Exhibit 300.</p> <p>25 (Exhibit 300 is marked.)</p>

58 (Pages 226 to 229)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 230</p> <p>1 A. This is the article. Okay.</p> <p>2 Q. (BY MS. WANG) And I'm sorry, Dr. Mullins, I</p> <p>3 forgot to actually write the number on the front</p> <p>4 before I handed it to you.</p> <p>5 A. Should I write it or do you have to?</p> <p>6 Q. No, that's fine. You can write it if you</p> <p>7 want to.</p> <p>8 A. 300?</p> <p>9 Q. Yes.</p> <p>10 A. (Witness complies.)</p> <p>11 Okay.</p> <p>12 Q. When was the first time you saw the</p> <p>13 Sharrafuddin article?</p> <p>14 A. In two volumes of exhibits I got from AGA</p> <p>15 that you-all sent them.</p> <p>16 Q. Okay.</p> <p>17 A. Prior art.</p> <p>18 Q. Okay. And prior to this case, had you ever</p> <p>19 read the article?</p> <p>20 A. No.</p> <p>21 Q. I mean, you didn't have a role in drafting</p> <p>22 the article?</p> <p>23 A. Didn't have what?</p> <p>24 Q. A role in drafting the article?</p> <p>25 A. No.</p>	<p style="text-align: right;">Page 232</p> <p>1 A. That's correct.</p> <p>2 Q. And so, as a person of ordinary skill in the</p> <p>3 art, the fact that the device is made from nitinol</p> <p>4 doesn't -- isn't enough to tell you whether or not</p> <p>5 the device is flexible?</p> <p>6 A. Definitely not.</p> <p>7 Q. And the fact that the device is made from</p> <p>8 nitinol isn't enough to tell you that it's flexible</p> <p>9 to allow lateral movement?</p> <p>10 A. Correct.</p> <p>11 Q. And the fact that the device is made of</p> <p>12 nitinol is insufficient to tell you that the device</p> <p>13 is stretchable?</p> <p>14 A. Correct.</p> <p>15 Q. I'm going to hand you what's being marked as</p> <p>16 Exhibit 301 to the deposition, and 302.</p> <p>17 (Exhibits 301 and 302 are marked.)</p> <p>18 Q. (BY MS. WANG) And I apologize, this is not</p> <p>19 stapled together.</p> <p>20 And before moving to Exhibit 301, is there</p> <p>21 anything -- any reason that you believe that the ASO</p> <p>22 device doesn't anticipate the claims of the '738</p> <p>23 patent, other than what's reflected in your report</p> <p>24 and what we've discussed today?</p> <p>25 A. No. It's what we've already discussed in</p>
<p style="text-align: right;">Page 231</p> <p>1 Q. You didn't have a role in reviewing the data</p> <p>2 that's reflected in the article?</p> <p>3 A. In this article?</p> <p>4 Q. Yes.</p> <p>5 A. No.</p> <p>6 Q. If you would turn to Page 41 of your expert</p> <p>7 report.</p> <p>8 A. All right.</p> <p>9 Q. I'm looking at the last paragraph in the</p> <p>10 first -- I'm sorry, the last sentence in the first</p> <p>11 full paragraph on the page that begins, "While the</p> <p>12 material that the disclosed ASO device is constructed</p> <p>13 from."</p> <p>14 A. Okay.</p> <p>15 Q. Are you there?</p> <p>16 So: While the material that the disclosed</p> <p>17 ASO is constructed from (nitinol wire) is certainly</p> <p>18 elastic, the device is constructed from many wires in</p> <p>19 a tight weave formed into a cylinder and there is no</p> <p>20 indication or suggestion to a person of ordinary</p> <p>21 skill that the tight weave of the wires and the waist</p> <p>22 geometry of the disclosed ASO device results in a</p> <p>23 central portion that is flexible to allow the</p> <p>24 enlarged diameter portions to move laterally.</p> <p>25 Is that right?</p>	<p style="text-align: right;">Page 233</p> <p>1 terms of project -- Kotula.</p> <p>2 Q. So, I've handed you what's been marked as</p> <p>3 Exhibit 301.</p> <p>4 Do you recognize that document?</p> <p>5 A. Yes.</p> <p>6 Q. And can you identify it for the record?</p> <p>7 A. It is the patent of Maso -- whatever his name</p> <p>8 is -- on a nitinol measure device.</p> <p>9 Q. So we call him "Mezzoci" [phonetic]?</p> <p>10 A. Mezzoci [phonetic].</p> <p>11 Q. I'm not sure if that's correct or not, but</p> <p>12 that's what we call him.</p> <p>13 Prior to your work on this case, had you ever</p> <p>14 seen the Mazzocchi '591 patent?</p> <p>15 A. No.</p> <p>16 Q. And do you know Mr. Mazzocchi?</p> <p>17 A. No.</p> <p>18 Q. Do you know Timothy Claude?</p> <p>19 A. No.</p> <p>20 Q. And do you know James Segermark?</p> <p>21 A. No.</p> <p>22 Q. So, you have no reason to have any facts or</p> <p>23 opinion about their individual contributions to the</p> <p>24 inventions disclosed in the Mazzocchi '591 patent?</p> <p>25 A. No.</p>

59 (Pages 230 to 233)

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3/6/2013

<p style="text-align: right;">Page 234</p> <p>1 Q. And it's actually a patent application, so</p> <p>2 I'll just refer to it as Mazzocchi '591, just to be</p> <p>3 clear.</p> <p>4 I've also handed you Exhibit 302, which is</p> <p>5 Figure 5-A from Mesachi?</p> <p>6 A. Correct.</p> <p>7 Q. And before we go on, and out of deference to</p> <p>8 your counsel for not marking the exhibit, can you</p> <p>9 identify on Exhibit 302 where the central portion of</p> <p>10 the device is?</p> <p>11 MR. ZAYED: Object to form.</p> <p>12 A. I would say from the edge of the disk, but</p> <p>13 this one is less distinct than even the previous</p> <p>14 devices, because this has a very distinct blend into</p> <p>15 the disk.</p> <p>16 But I suspect that the central portion goes</p> <p>17 from the edge of the disk to the edge of the disk.</p> <p>18 Q. And when you say "the edge of the disk to the</p> <p>19 edge of the disk" --</p> <p>20 A. Vertical edge.</p> <p>21 Q. So, does it -- in your opinion, does it</p> <p>22 include the portion in between the disks that is</p> <p>23 starting to flare out?</p> <p>24 A. No.</p> <p>25 Q. Okay. So, it's before it starts to flare?</p>	<p style="text-align: right;">Page 236</p> <p>1 reviewed the entire patent?</p> <p>2 A. The entire patent that was in your folder,</p> <p>3 yes.</p> <p>4 Q. Okay. From -- from your perspective, and</p> <p>5 under the definitions we've been working on today,</p> <p>6 the central portion of the Mazzocchi '591 device</p> <p>7 doesn't have a shaped to form -- isn't shaped to form</p> <p>8 because it doesn't have a helical wind, a bend, or a</p> <p>9 coil shape?</p> <p>10 A. Correct.</p> <p>11 Q. And you say at the bottom of Page 48, in the</p> <p>12 second sentence: The Mazzocchi '591 teaches only</p> <p>13 that the size of the central portion, not the shape</p> <p>14 of the central portion, may be varied.</p> <p>15 Is that correct?</p> <p>16 MR. ZAYED: I'm sorry. Where is that?</p> <p>17 MS. WANG: It's at the bottom of</p> <p>18 Page 48. And it's the second sentence.</p> <p>19 A. Yes.</p> <p>20 Q. (BY MS. WANG) And it doesn't have a specific</p> <p>21 citation, Dr. Mullins. So, is it correct to say that</p> <p>22 you drew that opinion and conclusion by reviewing the</p> <p>23 entire Mazzocchi '591 patent?</p> <p>24 A. Right.</p> <p>25 Q. But you would agree that the Mazzocchi '591</p>
<p style="text-align: right;">Page 235</p> <p>1 MR. ZAYED: Object to form.</p> <p>2 A. This is semantics.</p> <p>3 Q. Okay. So, I'm just trying to understand,</p> <p>4 when you're -- when we're going to be talking</p> <p>5 about --</p> <p>6 A. Right.</p> <p>7 Q. -- whether or not the central portion is</p> <p>8 flexible, what are we actually talking about.</p> <p>9 Does that make sense?</p> <p>10 A. Right.</p> <p>11 Q. Okay.</p> <p>12 A. Well, I -- I consider from the disk -- the</p> <p>13 disk to disk. And that flared portion is part of the</p> <p>14 central portion.</p> <p>15 Q. So, the flared portion is part of the central</p> <p>16 portion?</p> <p>17 A. Yes.</p> <p>18 Q. Okay. So, I think you indicated that you</p> <p>19 reviewed this patent.</p> <p>20 Did you review its entire disclosure?</p> <p>21 A. I think so.</p> <p>22 Q. And other than the patent itself, did you</p> <p>23 review a prosecution history of the patent?</p> <p>24 A. The prosecution history? No.</p> <p>25 Q. Okay. And in rendering your opinions, you</p>	<p style="text-align: right;">Page 237</p> <p>1 patent discloses that you can vary the size of the</p> <p>2 central portion?</p> <p>3 A. The diameter, yes.</p> <p>4 Q. Yes. And your opinion that Mazzocchi '591</p> <p>5 does not disclose a central portion shaped to form, a</p> <p>6 resilient portion to thereby pull the two enlarged</p> <p>7 diameter portions toward each other, is based on your</p> <p>8 review of the Mazzocchi '591 reference as a whole?</p> <p>9 A. Correct.</p> <p>10 Q. I'm now looking at Page 50, in the last</p> <p>11 paragraph of Page 50.</p> <p>12 A. Okay.</p> <p>13 Q. Okay. And it says: The '738 patent explains</p> <p>14 the central portion is resilient and pulls the outer</p> <p>15 disks toward each other and the "spring-like action</p> <p>16 of the central portion ... will cause the perimeter</p> <p>17 edge ... of the corresponding disks to fully engage</p> <p>18 the side wall of the septum."</p> <p>19 Do you see that?</p> <p>20 A. Correct.</p> <p>21 Q. And you go on to say: In contrast, Mazzocchi</p> <p>22 '591 discloses a device that is intended to occlude</p> <p>23 blood vessels or other channels in the human body.</p> <p>24 A. Correct.</p> <p>25 Q. And it's your interpretation that "channels"</p>

60 (Pages 234 to 237)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 238</p> <p>1 does not include defects?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 A. Semantically, the ASD is a channel between</p> <p>4 two chambers, the ASD. But I interpret "channels,"</p> <p>5 as he draws his diagrams, as a tubular structure.</p> <p>6 Q. (BY MS. WANG) Is the -- is a PFO considered</p> <p>7 a channel?</p> <p>8 A. A long PFO would be a channel.</p> <p>9 Q. And just to close out this line of</p> <p>10 questioning, Dr. Mullins, your opinion that Mazzocchi</p> <p>11 '591 doesn't anticipate the claims 23 and 30 of the</p> <p>12 '738 patent is based on your interpretation that the</p> <p>13 reference does not disclose changing the shape of the</p> <p>14 central portion?</p> <p>15 MR. ZAYED: Object to form.</p> <p>16 A. Correct.</p> <p>17 Q. (BY MS. WANG) And you didn't consider any</p> <p>18 part of the disclosure of Mazzocchi to contemplate</p> <p>19 varying shape?</p> <p>20 A. No.</p> <p>21 Q. Now, again, to summarize, I'm going to ask</p> <p>22 you, so I can make sure I understand what the dispute</p> <p>23 is, or your opinion is, about Mazzocchi that --</p> <p>24 MR. ZAYED: Object to form of the</p> <p>25 summary, asked and answered, mischaracterizes the</p>	<p style="text-align: right;">Page 240</p> <p>1 does.</p> <p>2 Q. Okay. So, you don't -- you're not here today</p> <p>3 to disclose an opinion that Mazzocchi '591 does not</p> <p>4 meet that limitation?</p> <p>5 A. Correct.</p> <p>6 MR. ZAYED: Object to form.</p> <p>7 Q. (BY MS. WANG) And Mazzocchi '591 has a</p> <p>8 collapse configuration for delivery through a channel</p> <p>9 in a patient's body?</p> <p>10 A. Correct.</p> <p>11 Q. You dispute that Mazzocchi '591 has a</p> <p>12 flexible central portion that's shaped to form a</p> <p>13 resilient portion because it "doesn't have a helical</p> <p>14 bend or spiral shape?</p> <p>15 A. Correct.</p> <p>16 Q. In your opinion, does Mazzocchi -- is</p> <p>17 Mazzocchi '591 a resilient device as it comes out of</p> <p>18 the catheter?</p> <p>19 MR. ZAYED: Object to form.</p> <p>20 A. Resilient -- it resumes its form, yes.</p> <p>21 Q. (BY MS. WANG) And part of what resumes its</p> <p>22 form is the central portion?</p> <p>23 MR. ZAYED: Object to form.</p> <p>24 A. Once both of the distal ends resume their</p> <p>25 form, then it resumes its form, yes.</p>
<p style="text-align: right;">Page 239</p> <p>1 testimony, argumentative.</p> <p>2 Q. (BY MS. WANG) -- that you would agree,</p> <p>3 wouldn't you, that Mazzocchi '591 discloses a</p> <p>4 collapsible medical device?</p> <p>5 A. Correct.</p> <p>6 Q. And Mazzocchi '591 discloses a device with</p> <p>7 two enlarged diameter portions?</p> <p>8 A. Correct.</p> <p>9 Q. And Mazzocchi '591 discloses a device with a</p> <p>10 flexible central portion?</p> <p>11 MR. ZAYED: Object to form.</p> <p>12 A. Bendable. Not stretchable.</p> <p>13 Q. (BY MS. WANG) Okay. And then, Mazzocchi</p> <p>14 '591 doesn't include a central portion that allows</p> <p>15 lateral movement of the two enlarged diameter</p> <p>16 portions with respect to each other?</p> <p>17 A. That's correct.</p> <p>18 Q. And Mazzocchi '591 discloses a device with a</p> <p>19 proximal and a distal end?</p> <p>20 A. Correct.</p> <p>21 Q. And Mazzocchi '591 discloses a device where</p> <p>22 at least one of the proximal and distal ends includes</p> <p>23 a means for securing the device to a delivery system?</p> <p>24 A. I didn't pay much attention to that. I</p> <p>25 didn't think it was contested. But I believe it</p>	<p style="text-align: right;">Page 241</p> <p>1 Q. (BY MS. WANG) And -- and then, but you</p> <p>2 dispute that Mazzocchi '591 discloses a device that</p> <p>3 pulls the two enlarged diameter portions toward the</p> <p>4 other when fully implanted?</p> <p>5 MR. ZAYED: Object to form.</p> <p>6 A. Correct.</p> <p>7 Q. (BY MS. WANG) You also dispute the fact that</p> <p>8 Mazzocchi '591 has a central portion that stretches</p> <p>9 to adjust to a patient's atrial septum once it's</p> <p>10 fully deployed?</p> <p>11 MR. ZAYED: Object to form.</p> <p>12 A. Correct.</p> <p>13 Q. (BY MS. WANG) Did you consider whether or</p> <p>14 not Mazzocchi '591 discloses a device that has disks</p> <p>15 that can wiggle, as you said before, 1 to 2</p> <p>16 millimeters?</p> <p>17 A. As narrow as the waist is, it probably can</p> <p>18 wiggle a little bit. It going to be more by changing</p> <p>19 the angle of the disks.</p> <p>20 Q. But with the narrow central portion, the</p> <p>21 Mazzocchi '591 patent discloses a device that could</p> <p>22 have some lateral movement --</p> <p>23 MR. ZAYED: Object to form.</p> <p>24 A. I would say not significant lateral movement.</p> <p>25 It wouldn't work in the things that it's designed</p>

61 (Pages 238 to 241)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 242</p> <p>1 for. It's designed mainly to work in a tubular 2 structure. And if you allowed lateral movement, you 3 would tumble it. 4 Q. (BY MS. WANG) Okay. But when I -- I guess 5 what -- I'm just trying to say -- I'm just trying to 6 understand, when you say "significant lateral 7 movement," do you, in your opinion as a person of 8 ordinary skill in the art, read the Mazzocchi '591 9 disclosure as disclosing a device that could allow 2 10 millimeters of lateral movement between those disks? 11 MR. ZAYED: Object to form. 12 A. I would have to test it for that. But I 13 would doubt it. It may be 2 millimeters; no more, 14 though. Because it's, again, a cylinder. 15 And this is a cylinder with a flare at the 16 end of it, which even reduces lateral movement more. 17 Q. (BY MS. WANG) And before I move off 18 Mazzocchi '591, is there anything that is not 19 disclosed in your report and that we haven't 20 discussed today upon which you based your opinion? 21 A. No. 22 Q. And is there anything that we haven't 23 discussed today, and that isn't reflected in your 24 report, that is an opinion of yours about Mazzocchi 25 '591?</p>	<p style="text-align: right;">Page 244</p> <p>1 for me what the central portion is? 2 MR. ZAYED: Object to form. 3 A. That -- that straight or coiled spring thing. 4 Q. (BY MS. WANG) When you say the "coiled 5 spring thing," are you referring to 124? 6 A. 124, yes. 7 Q. And does it extend from the enlarged disk 8 portions? 9 A. Yes. 10 Q. So, it includes -- 11 A. It appears to, although they're sort of 12 sitting in space there. But -- 13 Q. Okay. 14 A. -- it doesn't show an attachment. 15 Q. And does it -- does it include the straight 16 portions? 17 A. Yes. 18 Q. So, it includes the straight and the coil? 19 A. Correct. 20 MR. ZAYED: Object to form. 21 Q. (BY MS. WANG) Now, the Kamiya '301 patent 22 clearing discloses a central portion that has a coil 23 shape; is that right? 24 A. Correct. 25 Q. And --</p>
<p style="text-align: right;">Page 243</p> <p>1 A. Well, when I read the patent, I assumed it 2 was for a tubular structure. And it sort of makes an 3 offhand reference to ASDs. But it doesn't make any 4 description of how to use it in an ASD. 5 Q. And is that -- is that all? 6 A. Yeah. 7 Q. Okay. I'm going to hand you what's being 8 marked as Exhibits 303 and 304 to the deposition. 9 MR. ZAYED: What's 302? 10 MS. WANG: I think 302 is the 11 individual. 12 THE WITNESS: It's this picture, 13 individual. 14 MR. ZAYED: Okay. 15 (Exhibits 303 and 304 are marked.) 16 MR. ZAYED: Which one is which? 17 MS. WANG: 303 is the Kamiya '301 18 patent and 304 is a Figure 12(a) from the Kamiya 19 patent. 20 Q. (BY MS. WANG) Dr. Mullins, have you seen the 21 Kamiya patent before? 22 A. Yes. 23 Q. And you've seen Figure 12(a) before? 24 A. Yes. 25 Q. Now, taking Figure 12(a), can you identify</p>	<p style="text-align: right;">Page 245</p> <p>1 A. I will add "at a specific temperature." 2 Q. "At a specific temperature." 3 And what's the significance of that? 4 A. You have to make a 30-40 degree change in 5 temperature to change the shape of the coil to make 6 it either straight or coiled, which is virtually 7 impossible to perform in the body. 8 Q. Okay. You've seen the Kamiya '301 patent 9 before, haven't you? 10 A. Yes. 11 Q. And you've actually relied on the Kamiya '301 12 patent before? 13 A. Before this case? 14 Q. Yes. 15 A. I -- I did see it in the -- in the Medtronic 16 case, yes. 17 Q. And you -- didn't you also see it in the 18 University of Minnesota case? 19 A. Maybe. I -- I didn't catalog these. 20 Q. Sure. Going back to Exhibit 293. 21 A. What's that? 22 Q. It's your expert report in the University of 23 Minnesota case. 24 So, right here, Dr. Mullins -- 25 A. I didn't even look at that. All right.</p>

62 (Pages 242 to 245)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 246</p> <p>1 Q. And if you look at Page 46, which is Bates 2 marked AGA_GORE2006629. 3 A. I did review it, yeah. 4 Q. And so, you, yourself, have relied upon 5 Kamiya as a prior reference? 6 A. Yes. 7 MR. ZAYED: Object to form. 8 Q. (BY MS. WANG) So, I think you said that 9 the -- the central portion of the Kamiya '301 patent 10 requires a specific temperature change of 30 to 40 11 degrees in the body? 12 A. Difference from a straight form, correct. 13 Q. And so, is that what's disclosed in Footnote 14 10? 15 MR. ZAYED: Footnote 10 of what? 16 Q. (BY MS. WANG) I'm sorry. Footnote 10 of 17 your current expert report on Page 53? 18 A. 53? 19 Q. On Page 53 of your current report. 20 A. Okay. Yes. 21 Q. And so, I don't see a citation there. So, is 22 it fair to say that you came to that conclusion by 23 reading the entire disclosure of the '301 patent? 24 A. Yes. 25 Q. You didn't look at the prosecution history of</p>	<p style="text-align: right;">Page 248</p> <p>1 Page 53, the second line -- 2 A. Okay. 3 Q. -- under the heading "Claim 23"? 4 A. 23, correct. 5 Q. Okay. Are you there? 6 A. Uh-huh. 7 Q. And so, at that point, you say: Rigidity is 8 taught as a desired property of the disclosed coil 9 between the "flanges" of the Kamiya '301 device. 10 Is that right? 11 A. Correct. 12 Q. And you understand that the flanges of the 13 Kamiya 301 device are enlarged diameter portions? 14 A. Correct. 15 Q. And those enlarged diameter portions are a 16 part of Figure 12(a) in Exhibit 304? 17 A. Correct. 18 Q. The structures labeled 122 and 121? 19 A. Correct. 20 Q. So, you say: Having resumed its original 21 length when implanted in the body, the central 22 portion is rigid and not flexible. 23 A. Correct. 24 Q. And the relevant timeframe that you analyzed 25 was once it was implanted and fully deployed?</p>
<p style="text-align: right;">Page 247</p> <p>1 the '301 patent? 2 A. No. 3 Thermally changed devices have been tried and 4 have all failed. 5 Q. Okay. And that's -- I -- I understand that 6 that's what you're focused on. 7 What I'm going to ask you about is actually 8 the disclosure of the '301 patent. So, if you can 9 focus on what's disclosed in the '301 patent. 10 MR. ZAYED: I think he just answered 11 that. Object to the form. 12 Q. (BY MS. WANG) So, you stated that: Rigidity 13 is taught of the desired property for the disclosed 14 coil between the flanges of the Kamiya '301 device; 15 is that correct? 16 A. Yes. 17 MR. ZAYED: You keep saying he states 18 without providing us a page or line number for us to 19 follow. 20 MS. WANG: Okay. 21 MR. ZAYED: If you gave us a 22 highlighted copy like you have, we would be able to 23 follow you. This, I think, is unfair. 24 MS. WANG: Okay. I apologize. 25 Q. (BY MS. WANG) Dr. Mullins, I'm looking at</p>	<p style="text-align: right;">Page 249</p> <p>1 A. Correct. 2 Q. And was it after it had been thermally set as 3 well? 4 A. Well, that's the big problem with them. They 5 start thermally setting as soon as they hit warmer 6 temperatures. 7 Q. Okay. 8 A. So sometimes they start thermally setting 9 when they're down in the groin and not in the heart, 10 if it were to be an ASD device. 11 But, yeah, once it's thermally set, which is 12 adjusted for body temperature, it's rigid. It pulls 13 together. 14 Q. Okay. 15 A. That's the whole purpose of the temperature 16 change. 17 Q. And when you say it "pulls together," the 18 central portion pulls the two large flanges together? 19 A. Correct. 20 MR. ZAYED: Object to form. 21 Q. (BY MS. WANG) And that's once it seated in 22 the defect? 23 A. Well, it's once it hits warm temperature. 24 Hopefully it's seated in the defect. 25 Q. The Kamiya '301 patent intends for the</p>

63 (Pages 246 to 249)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 250</p> <p>1 occlusion device to be seated in the defect before 2 it's thermally set?</p> <p>3 A. Which is sort of hard to accomplish, because 4 as soon as you put in it the groin or the neck, or 5 whatever you're introducing it, you're in body 6 temperature.</p> <p>7 You have to do something to keep it cool till 8 it gets to the site where you want it to be at body 9 temperature.</p> <p>10 And as soon as it varies even a few degrees, 11 it starts resuming its resting shape.</p> <p>12 Q. Okay. So, I understand that. But in terms 13 of the disclosure of the '301 patent, the inventors 14 of the '301 patent intended for the device to be 15 seated in the defect before it started resuming --</p> <p>16 A. That was their --</p> <p>17 Q. -- its position?</p> <p>18 MR. ZAYED: Object to form.</p> <p>19 A. -- their dream, yes.</p> <p>20 Q. (BY MS. WANG) And that was the disclosure of 21 the Kamiya '301?</p> <p>22 MR. ZAYED: Object to form.</p> <p>23 The disclosure was thermally changed 24 devices. Object to form.</p> <p>25 Q. (BY MS. WANG) Is that correct?</p>	<p style="text-align: right;">Page 252</p> <p>1 Q. Okay. And that's the same that we've been 2 talking about today?</p> <p>3 A. Correct.</p> <p>4 Q. Now, in terms of when it's not resilient or 5 stretchable or flexible, is it once the thermal 6 setting is complete or is it -- what timeframe is 7 that?</p> <p>8 MR. ZAYED: Object to form, asked and 9 answered.</p> <p>10 A. That's dependent on the materials, dependent 11 on the environment that it's delivered in.</p> <p>12 If you could deliver it in a 1-inch diameter 13 tube, flushed with freezing water, and then suddenly 14 stop that and have it in the -- in the defect when 15 you put it in body temperature, then it would be 16 instantaneous. But you can't do that.</p> <p>17 So, it -- it's why it's never been produced 18 and why it's never used, because it -- you can't 19 practically keep it at a cool enough temperature and 20 then transition it suddenly to the body temperature, 21 which is it's -- it's going to be its resting -- 22 quote, "resting shape."</p> <p>23 Q. (BY MS. WANG) Okay. So, I -- I'm actually 24 just trying to get back to the disclosure of the 25 Kamiya '301 patent.</p>
<p style="text-align: right;">Page 251</p> <p>1 A. Yes.</p> <p>2 Q. Now, looking at Kamiya patent, do you know 3 any of the inventors listed on the front of the 4 patent?</p> <p>5 A. No.</p> <p>6 Q. Now, the central portion of 12(a) is a coil. 7 And it's your opinion that it's rigid.</p> <p>8 So, is it fair to say that your opinion is 9 that just because something is a coil doesn't mean 10 it's flexible.</p> <p>11 A. That's correct.</p> <p>12 Q. And is it your opinion that just because 13 something is a coil doesn't mean it's resilient?</p> <p>14 A. That's correct.</p> <p>15 Q. And is it your opinion that just because 16 something is a coil doesn't mean it's stretchable?</p> <p>17 A. Correct.</p> <p>18 Q. And is that from the perspective of once --</p> <p>19 A. Can I add one thing?</p> <p>20 Q. Yes.</p> <p>21 A. Within reasonable force.</p> <p>22 Q. Okay. So, when you say "within reasonable 23 force," are you using the definition of physiological 24 force that you've been using --</p> <p>25 A. In this case, physiological force.</p>	<p style="text-align: right;">Page 253</p> <p>1 So, I'm just trying to understand, when you 2 say that that central portion -- that central coil 3 isn't flexible, and it -- that Kamiya '301 discloses 4 that it's rigid, is that after it's been fully 5 deployed, in effect --</p> <p>6 A. Yes.</p> <p>7 MR. ZAYED: Would you read back -- 8 excuse me. Would you read back the last question, 9 and answer.</p> <p>10 (The requested portion of the record 11 was read by the court reporter.)</p> <p>12 Q. (BY MS. WANG) So, just to be clear, so the 13 record is clear, it's after it's fully deployed and 14 set?</p> <p>15 A. Right. And this illustration shows a nice 16 long coil which would stretch from one side of the 17 atrium to the other, much less clamp on a septum.</p> <p>18 You're talking about a coil that's going to 19 have one or two loops. So it's going to be very 20 strong coil if it's going to pull the two disks 21 together.</p> <p>22 Q. Okay.</p> <p>23 A. Which makes it even more improbable.</p> <p>24 Q. So, I'm just trying to understand this, 25 because I'm just going off the disclosure --</p>

64 (Pages 250 to 253)

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CHARLES E. MULLINS, M.D.
3/6/2013

Page 254	Page 256
<p>1 A. Right.</p> <p>2 Q. -- of the '301 patent.</p> <p>3 So, the disclosure of the '301 patent tells</p> <p>4 you, as a person of ordinary skill in the art, that</p> <p>5 once the Kamiya device is thermally set at body</p> <p>6 temperature, it's not -- it's rigid?</p> <p>7 A. It's rigid. It preaches rigidity, or</p> <p>8 strength.</p> <p>9 Q. Okay. And because it preaches rigidity or</p> <p>10 strength, it's not flexible; is that right?</p> <p>11 A. Correct.</p> <p>12 Q. And it's not stretchable; is that right?</p> <p>13 A. Correct.</p> <p>14 Q. And it's not -- it doesn't allow lateral</p> <p>15 movement?</p> <p>16 A. All of this at body temperature, correct.</p> <p>17 Q. Okay. And you don't have an opinion as to</p> <p>18 what the device does before it's set at body</p> <p>19 temperature; is that right?</p> <p>20 MR. ZAYED: Object to form.</p> <p>21 Q. (BY MS. WANG) That's not the basis of your</p> <p>22 opinion?</p> <p>23 A. No. It -- it presumably stretches out</p> <p>24 straight so you can put it through a tube, but . . .</p> <p>25 Q. But that is not part of your opinion with the</p>	<p>1 Q. And disclosure describes a medical device</p> <p>2 with two enlarged diameter portions?</p> <p>3 A. Correct.</p> <p>4 Q. And the Kamiya '301 patent discloses a device</p> <p>5 with a flexible central portion prior to being</p> <p>6 thermally set?</p> <p>7 A. Correct.</p> <p>8 MR. ZAYED: Object to form.</p> <p>9 Q. (BY MS. WANG) And that flexible central</p> <p>10 portion interconnects the two enlarged diameter</p> <p>11 portions together?</p> <p>12 MR. ZAYED: Object to form.</p> <p>13 A. Correct.</p> <p>14 Q. (BY MS. WANG) The Kamiya '301 patent</p> <p>15 discloses a device where the flexible central</p> <p>16 portion, prior to being thermally set, could extend</p> <p>17 from septum to septum, or -- I'm sorry, end to end of</p> <p>18 the heart?</p> <p>19 MR. ZAYED: Object to form.</p> <p>20 A. Yes.</p> <p>21 Q. (BY MS. WANG) Okay. And if it's stretched</p> <p>22 that much, it could allow lateral movement; is that</p> <p>23 correct?</p> <p>24 MR. ZAYED: Object to form.</p> <p>25 A. Not at body temperature.</p>
Page 255	Page 257
<p>1 Kamiya --</p> <p>2 A. No.</p> <p>3 Q. -- '301 patent?</p> <p>4 A. No.</p> <p>5 MR. ZAYED: Object to form.</p> <p>6 Q. (BY MS. WANG) So, with respect to the Kamiya</p> <p>7 '301 patent, is it your opinion that because the</p> <p>8 central portion spiral has to be strong enough to</p> <p>9 pull the enlarged disk portions together, that it has</p> <p>10 to be rigid?</p> <p>11 A. Yes. And it's preached in the patent.</p> <p>12 Q. So, again, to summarize, the Kamiya '301</p> <p>13 patent --</p> <p>14 MR. ZAYED: Object to form. Just for</p> <p>15 the record, I make all the objections to the past</p> <p>16 summaries as asked and answered and mischaracterizes</p> <p>17 the testimony, takes the expert report out of context</p> <p>18 and is a waste of time.</p> <p>19 Q. (BY MS. WANG) The Kamiya '301 patent</p> <p>20 discloses a collapsible medical device?</p> <p>21 MR. ZAYED: Object to form.</p> <p>22 A. Theorizes one.</p> <p>23 Q. (BY MS. WANG) So -- but the disclosure</p> <p>24 describes a collapsible medical device?</p> <p>25 A. Correct.</p>	<p>1 Q. (BY MS. WANG) Right. But prior to it being</p> <p>2 thermally set, if it's a loose coil, it could -- it</p> <p>3 could allow lateral movement?</p> <p>4 MR. ZAYED: Object to form.</p> <p>5 Q. (BY MS. WANG) Your opinion is that it</p> <p>6 doesn't allow lateral movement once it's thermally</p> <p>7 set?</p> <p>8 A. That's correct.</p> <p>9 Q. The Kamiya '301 patent discloses a device</p> <p>10 having a proximal and a distal end?</p> <p>11 A. Correct.</p> <p>12 Q. And the Kamiya '301 patent discloses a device</p> <p>13 that has a proximal -- where at least the proximal or</p> <p>14 distal end includes a means for securing the device</p> <p>15 to a delivery system?</p> <p>16 MR. ZAYED: Object to form.</p> <p>17 Where is that in his opinion?</p> <p>18 A. Yeah. I don't remember seeing anything about</p> <p>19 the delivery system, but I didn't pay attention to</p> <p>20 that.</p> <p>21 MR. ZAYED: Where is that in his</p> <p>22 opinion?</p> <p>23 Q. (BY MS. WANG) So sitting here today --</p> <p>24 A. The attachment --</p> <p>25 Q. -- do you have an opinion that the Kamiya</p>

65 (Pages 254 to 257)

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3/6/2013

<p style="text-align: right;">Page 258</p> <p>1 '301 patent does not meet that limitation?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 A. The attachment limitation?</p> <p>4 Q. (BY MS. WANG) Yes.</p> <p>5 A. I don't have an opinion.</p> <p>6 Q. Okay. And the Kamiya '301 discloses a</p> <p>7 description of the device having a collapse</p> <p>8 configuration for delivery through a channel in a</p> <p>9 patient's body?</p> <p>10 MR. ZAYED: Object to form.</p> <p>11 A. That, in an extremely different temperature,</p> <p>12 yes.</p> <p>13 Q. (BY MS. WANG) The Kamiya '301 patent has a</p> <p>14 central portion that is shaped to form because it has</p> <p>15 a -- a spiral shape?</p> <p>16 MR. ZAYED: Object to form. It's</p> <p>17 the -- that mischaracterizes the claim language.</p> <p>18 "Shaped to form or resilient portion to pull the</p> <p>19 disks together" is the language.</p> <p>20 Q. (BY MS. WANG) Does the Kamiya '301 patent --</p> <p>21 A. It has a specific form when it's at body</p> <p>22 temperature.</p> <p>23 Q. Okay.</p> <p>24 A. There's no change in that form.</p> <p>25 Q. At body temperature?</p>	<p style="text-align: right;">Page 260</p> <p>1 Q. (BY MS. WANG) Okay. And it's your opinion</p> <p>2 that it's not stretchable once it's thermally set in</p> <p>3 the body?</p> <p>4 A. Correct.</p> <p>5 Q. And so, it's your opinion that once it's</p> <p>6 thermally set in the body, it doesn't adjust to the</p> <p>7 thickness of the septum?</p> <p>8 A. Correct.</p> <p>9 Q. So, you don't have an opinion, sitting here</p> <p>10 today, that the central portion does not adjust prior</p> <p>11 to being thermally set?</p> <p>12 MR. ZAYED: Object to form.</p> <p>13 A. What's that again?</p> <p>14 Q. (BY MS. WANG) Sitting here today, you don't</p> <p>15 have an opinion as to whether or not the coil could</p> <p>16 adjust to the thickness of the septum before it's</p> <p>17 thermally set? So before it's heated?</p> <p>18 MR. ZAYED: Before it's put in the</p> <p>19 body? Object to form.</p> <p>20 A. It could adjust to a straight length before</p> <p>21 it's thermally set. Once it gets to it temperature,</p> <p>22 which you can't change, it's going to be a rigid,</p> <p>23 fixed distance, immobile distance.</p> <p>24 Q. (BY MS. WANG) Right. And that's your</p> <p>25 opinion?</p>
<p style="text-align: right;">Page 259</p> <p>1 A. At body temperature.</p> <p>2 Q. But before it's at body temperature, and at</p> <p>3 the time it's -- becomes at body temperature, is it</p> <p>4 resilient?</p> <p>5 MR. ZAYED: Object to form.</p> <p>6 A. It's -- it's resilient.</p> <p>7 Q. (BY MS. WANG) And the Kamiya '301 patent</p> <p>8 discloses a helical shape that you've said is an</p> <p>9 added shape that meets the limitation of shaped to</p> <p>10 form; is that right?</p> <p>11 MR. ZAYED: Object to form.</p> <p>12 A. Yes.</p> <p>13 Q. (BY MS. WANG) And the Kamiya '301 patent,</p> <p>14 from the time that it's not at body temperature to</p> <p>15 the time it reaches body temperature, pulls the</p> <p>16 enlarged disk portions together?</p> <p>17 MR. ZAYED: Object to form.</p> <p>18 A. Correct.</p> <p>19 Q. (BY MS. WANG) The Kamiya '301 patent has a</p> <p>20 central portion that's stretchable prior to it being</p> <p>21 set at body temperature?</p> <p>22 MR. ZAYED: Object to form.</p> <p>23 The claim language is "shaped to form</p> <p>24 and stretchable portion."</p> <p>25 A. Correct.</p>	<p style="text-align: right;">Page 261</p> <p>1 A. Yes.</p> <p>2 Q. Okay. And that's your only opinion?</p> <p>3 A. Yeah. In my opinion, pigs can't fly, but is</p> <p>4 that . . .</p> <p>5 Q. So, there's nothing else that we haven't</p> <p>6 discussed today or that's not included in your</p> <p>7 written report upon which you base your opinion that</p> <p>8 the Kamiya '301 patent doesn't anticipate claims 23</p> <p>9 and 30 of the '738 patent?</p> <p>10 A. There's nothing in the Kamiya patent that</p> <p>11 suggests lateral movement.</p> <p>12 Q. Okay.</p> <p>13 A. Because it doesn't say anything about the</p> <p>14 fixation of this central portion to the disks.</p> <p>15 Whether they blend in, they're welded in. It</p> <p>16 certainly doesn't mention any hooks or loops.</p> <p>17 So, I think it does not suggest lateral</p> <p>18 movement at any point in the -- either relaxed or --</p> <p>19 in its cold state or in its hot state.</p> <p>20 Q. Even if the -- in its cold state, it is a</p> <p>21 loose coil?</p> <p>22 A. Even if it's a loose coil.</p> <p>23 Q. So, it's your opinion that even with the</p> <p>24 loose coil, you can't necessarily assume that a loose</p> <p>25 coil will have lateral movement?</p>

66 (Pages 258 to 261)

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3/6/2013

<p style="text-align: right;">Page 262</p> <p>1 A. A very loose coil, not capable of pulling 2 something together, would have lateral movement. 3 Q. Okay. But -- okay. 4 MS. WANG: Why don't we take a quick 5 break. 6 THE VIDEOGRAPHER: Time is 3:51 and 7 we're off the record. 8 (Break.) 9 (Exhibits 305, 306 and 307 are 10 marked.) 11 THE VIDEOGRAPHER: This is the 12 beginning of Tape No. 6 to the deposition of 13 Dr. Charles Mullins. Time is 4:01 and we're on the 14 record. 15 Q. (BY MS. WANG) So, Dr. Mullins, I have handed 16 you Exhibits 305, 306, and 307. 17 MS. WANG: And for the record, those 18 are the Krmek patent, including the English 19 translation and then Figures 2 and Figures 4 from 20 that same patent. 21 Q. (BY MS. WANG) Have you seen these same 22 documents before? 23 A. Yes. 24 Q. And the Krmek patent is something that you 25 opine on Page 57 to 59 that doesn't anticipate the</p>	<p style="text-align: right;">Page 264</p> <p>1 A. Okay. 2 Q. -- that: There's a sheathing enclosing not 3 only the spring portion but the entire device that 4 would likely add lateral stiffness to the central 5 portion once the device is implanted in the body. 6 A. Correct. 7 Q. What is that sheathing that was disclosed in 8 the Krmek patent? 9 A. It's a fabric sheathing. I don't know what 10 the a fabric is. I don't remember. 11 Q. And it's your opinion that the fabric would 12 likely add lateral stiffness to the central portion? 13 A. It would add some, yes. 14 Q. And why is that? 15 A. It's an extra bulk around the -- the spring 16 portion which extends to the -- the device portion, 17 the best I can interpret this translation of this. 18 Q. So, it's the added fabric -- 19 A. Right, it's -- 20 Q. -- to the middle -- 21 A. It's like a sac around both of them. 22 Q. So, it's the added fabric to the middle that 23 you think would add to lateral stiffness? 24 A. That would add to it. That's not the only 25 reason.</p>
<p style="text-align: right;">Page 263</p> <p>1 asserted claims 23 and 30; is that correct? 2 A. Correct. 3 Q. And is it correct to say that your opinion 4 with respect to the Krmek patent is disclosed in 5 Pages 57 through 59. 6 MR. ZAYED: Object to form. There's 7 also other Krmek discussions and obvious discussions. 8 A. Yeah. But that's most of it. 9 Q. (BY MS. WANG) With respect to anticipation; 10 is that correct? 11 A. Yes. 12 Q. And so, looking at Exhibits 305 to 307 of the 13 Krmek patent, I think you've identified what the 14 central portion you believe to be on Page 58 of your 15 report? 16 A. Correct. 17 Q. And it's -- is it that entire area in red? 18 And I'm on Page 58 of your report. 19 MR. ZAYED: Look at your report. 20 A. Yes. 21 Q. (BY MS. WANG) And does that include the 22 spring and then the arms that come off the spring? 23 A. Yes. 24 Q. You have an opinion on Page 58 of your 25 report --</p>	<p style="text-align: right;">Page 265</p> <p>1 Q. Right. But that would add to lateral 2 stiffness? 3 A. Yes. 4 Q. And then you opine on Page 59, the last 5 sentence of the second paragraph, so the first full 6 paragraph, that: It's my opinion that the central 7 portion of the Krmek '291 device would not flex in 8 the manner depicted in Dr. Gorman's report because of 9 the tension, lateral stiffness, and relative short 10 length of the sheath spring braced laterally even 11 more for the angled braces on each of the 12 legs. 12 Is that right? 13 A. Correct. 14 Q. Is it your opinion -- well, let me ask you 15 this way: Is there any other reason that you believe 16 that the Krmek '291 device would not display lateral 17 movement? 18 A. Besides those four reasons, no. 19 Q. You agree, don't you, that the -- the spring 20 of the Krmek device would stretch? 21 MR. ZAYED: Object to form. 22 A. It has to stretch, yes. 23 Q. (BY MS. WANG) And you would agree that the 24 Krmek device contemplates that that spring will also 25 be resilient and pull the two enlarged portions</p>

67 (Pages 262 to 265)

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3/6/2013

<p style="text-align: right;">Page 266</p> <p>1 together?</p> <p>2 A. For it to work, it has to be very resilient.</p> <p>3 Q. Right. And so, that resiliency is seen in --</p> <p>4 between Exhibit 307 to 306?</p> <p>5 A. Correct.</p> <p>6 Q. So, in summary, you agree, don't you, that</p> <p>7 the Krmek 291 discloses a collapsible medical device?</p> <p>8 A. Correct.</p> <p>9 Q. You agree that Krmek includes two enlarged</p> <p>10 diameter portions?</p> <p>11 A. Correct.</p> <p>12 Q. Krmek discloses a flexible central portion?</p> <p>13 MR. ZAYED: Object to form.</p> <p>14 A. Correct.</p> <p>15 Q. (BY MS. WANG) But you dispute the fact that</p> <p>16 Krmek discloses a flexible -- a portion that allows</p> <p>17 lateral movement between the two enlarged disk</p> <p>18 portions?</p> <p>19 A. That is correct.</p> <p>20 Q. And that lateral movement is the same lateral</p> <p>21 movement that we've been talking about today, which</p> <p>22 is your interpretation that the lateral movement</p> <p>23 requires it to be able to occlude a long-tunnel PFO?</p> <p>24 A. Correct.</p> <p>25 Q. Krmek '291 discloses a device with a proximal</p>	<p style="text-align: right;">Page 268</p> <p>1 collapse configuration for delivery through a body in</p> <p>2 a channel?</p> <p>3 A. Semi-collapsed, yeah. It's big.</p> <p>4 Q. Right. Now, Krmek 291 also discloses a</p> <p>5 central portion shaped in a spring that's resilient;</p> <p>6 is that correct?</p> <p>7 MR. ZAYED: Object to form.</p> <p>8 A. Correct.</p> <p>9 Q. (BY MS. WANG) And in its resiliency, that</p> <p>10 central portion pulls the two large diameter portions</p> <p>11 together?</p> <p>12 MR. ZAYED: Object to form.</p> <p>13 A. Not very tightly, but, yes. Not very close</p> <p>14 together, but yes.</p> <p>15 Q. (BY MS. WANG) And Krmek '291 discloses a</p> <p>16 medical device where the central portion is</p> <p>17 stretchable; is that right?</p> <p>18 MR. ZAYED: Object to form.</p> <p>19 A. Correct.</p> <p>20 Q. (BY MS. WANG) And it can accommodate and</p> <p>21 adjust to the thickness of the atrial septal, while</p> <p>22 the two disks remain in that preset configuration,</p> <p>23 that "V" configuration?</p> <p>24 MR. ZAYED: Object to form.</p> <p>25 A. Correct.</p>
<p style="text-align: right;">Page 267</p> <p>1 and a distal end; is that right?</p> <p>2 A. Correct.</p> <p>3 Q. And Krmek '291 discloses -- well, let me ask</p> <p>4 you it this way: You don't have an opinion, sitting</p> <p>5 here today, that Krmek '291 does not disclose a means</p> <p>6 for securing; is that right?</p> <p>7 MR. ZAYED: Object to form.</p> <p>8 There's no opinion one way or the</p> <p>9 other in the report.</p> <p>10 A. I don't think there was any mention of it in</p> <p>11 the translation.</p> <p>12 Q. (BY MS. WANG) Okay.</p> <p>13 A. And my German is a little stale.</p> <p>14 Q. Okay. Well at least you have some German.</p> <p>15 A. 50 years ago.</p> <p>16 Q. So, you're not taking a position here today</p> <p>17 as AGA's expert that the Kamiya '301 patent doesn't</p> <p>18 disclose --</p> <p>19 MR. ZAYED: You said --</p> <p>20 Q. (BY MS. WANG) -- a means to secure?</p> <p>21 MR. ZAYED: You said "Kamiya '301."</p> <p>22 Did you mean "Krmek"?</p> <p>23 Q. (BY MS. WANG) I'm sorry, Krmek '291?</p> <p>24 A. Correct.</p> <p>25 Q. And Krmek 291 has -- is a device having a</p>	<p style="text-align: right;">Page 269</p> <p>1 Q. (BY MS. WANG) I'm going to hand you what's</p> <p>2 being marked as Exhibits 308 and 309.</p> <p>3 (Exhibits 308 and 309 are marked.)</p> <p>4 Q. (BY MS. WANG) Have you seen Exhibits 308 and</p> <p>5 309 before?</p> <p>6 A. Yes, yes.</p> <p>7 Q. And can you identify Exhibit 308 for the</p> <p>8 record, please?</p> <p>9 A. This is the Neuss -- I guess it's the patent</p> <p>10 or German patent.</p> <p>11 Q. Okay. So, the Neuss 274 patent and the</p> <p>12 figure -- I've been calling it "Nuss" [phonetic].</p> <p>13 So, it's probably "Nois" [phonetic.]</p> <p>14 So, Figure 7 is Exhibit 309.</p> <p>15 Do you have both of those in front of you?</p> <p>16 A. Yes.</p> <p>17 Q. Now, again, can you identify for me what the</p> <p>18 central portion of the device is on Exhibit 309?</p> <p>19 A. 1 is pointing at something. 12 is touching</p> <p>20 something. So, probably 12.</p> <p>21 Q. Okay. And is it that entire coil in between</p> <p>22 the two --</p> <p>23 A. Yes.</p> <p>24 Q. -- disks?</p> <p>25 A. Correct.</p>

68 (Pages 266 to 269)

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3/6/2013

<p style="text-align: right;">Page 270</p> <p>1 Q. So, you -- that's the central portion you</p> <p>2 agree, based on your definition of "shaped to form,"</p> <p>3 that it has an added shape of a spiral?</p> <p>4 MR. ZAYED: Object to form.</p> <p>5 A. Correct.</p> <p>6 Q. (BY MS. WANG) And it's your opinion, and I'm</p> <p>7 looking at Page 61, that the -- the coil defined by</p> <p>8 the Neuss '274 patent is tightly wound.</p> <p>9 And if you want to the specific reference,</p> <p>10 it's in the middle of the second full paragraph: In</p> <p>11 fact, Neuss '274 relies on the tightness the coil for</p> <p>12 its occlusive properties.</p> <p>13 MR. ZAYED: What page?</p> <p>14 MS. WANG: 61.</p> <p>15 THE WITNESS: 61.</p> <p>16 Q. (BY MS. WANG) And you agree with that</p> <p>17 statement?</p> <p>18 A. Yeah, on the basis of his description and</p> <p>19 having examined the coil.</p> <p>20 Q. Okay. So -- and when you say you've examined</p> <p>21 the coil, you've examined the coil of the Neuss</p> <p>22 device?</p> <p>23 A. Yes.</p> <p>24 Q. And when did you examine the coil of the</p> <p>25 Neuss device?</p>	<p style="text-align: right;">Page 272</p> <p>1 A. Correct.</p> <p>2 Q. And simply because the central portion is a</p> <p>3 coil shape does not mean that it's inherently</p> <p>4 flexible?</p> <p>5 A. Correct.</p> <p>6 Q. And simply because it's a coil shape does not</p> <p>7 mean that it can allow lateral movement?</p> <p>8 A. Correct.</p> <p>9 Q. And because it's a central coil that's</p> <p>10 tightly wound, it doesn't mean that it can stretch?</p> <p>11 A. Correct.</p> <p>12 Q. Now, when you're talking about resiliency and</p> <p>13 stretchability there, Dr. Mullins, are you talking</p> <p>14 about once it's implanted, or are you talking about</p> <p>15 throughout the deployment process?</p> <p>16 A. Once it's implanted, because it can be</p> <p>17 stretched out over a wire.</p> <p>18 Q. And from the time it's stretched out over a</p> <p>19 wire to be delivered, is that correct, it's --</p> <p>20 A. Yes.</p> <p>21 Q. -- to the time it's implanted, that central</p> <p>22 coil comes back together; is that right?</p> <p>23 A. Correct.</p> <p>24 Q. And so, during deployment, the central coil</p> <p>25 is resilient, that it brings the enlarged disk</p>
<p style="text-align: right;">Page 271</p> <p>1 A. Either just before or just after he patented</p> <p>2 it. I was at a meeting in Germany and they were</p> <p>3 discussing it.</p> <p>4 Q. Is Dr. -- I guess -- Neuss still alive?</p> <p>5 A. Yes. He was a young eccentric.</p> <p>6 Q. And when was the last time you saw the Neuss</p> <p>7 device?</p> <p>8 A. Probably in '94 or '95.</p> <p>9 Q. Did you ever implant a Neuss device?</p> <p>10 A. No.</p> <p>11 Q. Did you talk to Dr. Neuss in preparation of</p> <p>12 your expert report?</p> <p>13 A. No.</p> <p>14 Q. Did you talk to Dr. Neuss in preparation for</p> <p>15 this deposition?</p> <p>16 A. No.</p> <p>17 Q. And did you ever talk to Dr. Neuss about the</p> <p>18 '738 patent?</p> <p>19 A. It wasn't in existence when I last talked to</p> <p>20 him.</p> <p>21 Q. So, I'm going to have you turn your attention</p> <p>22 to Page 60 of your report.</p> <p>23 And it's your opinion that Neuss '274, so the</p> <p>24 disclosure of the patent is -- that it discloses a</p> <p>25 tightly wound coil; is that right?</p>	<p style="text-align: right;">Page 273</p> <p>1 portions back together?</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 A. It has a wire in it to keep it straight. And</p> <p>4 once that wire is totally removed from it, it then</p> <p>5 resumes its shape. But the wire immediately starts</p> <p>6 straightening it.</p> <p>7 Q. (BY MS. WANG) And you base that on -- off</p> <p>8 the disclosure of the Neuss '274 patent?</p> <p>9 A. And having looked at it with him.</p> <p>10 Q. Okay. Do you know for certain that the</p> <p>11 device that you looked at is an embodiment of the</p> <p>12 '274 patent?</p> <p>13 A. I'm 90 percent sure, because it later was</p> <p>14 taken over by PFM, as the PFM coil. But this was</p> <p>15 prior to PFM getting the coil. And certainly the</p> <p>16 description is exactly the same.</p> <p>17 Q. Okay. You didn't disclose the actual Neuss</p> <p>18 device in your expert report, did you?</p> <p>19 A. Yes, I did.</p> <p>20 Q. Okay. So, can you just point me to that,</p> <p>21 because I must have missed that.</p> <p>22 A. Wherever that disclosure of devices was.</p> <p>23 MR. ZAYED: It right on Page 5.</p> <p>24 A. Right. First one under "examined numerous</p> <p>25 occlusion devices."</p>

69 (Pages 270 to 273)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 274</p> <p>1 Q. (BY MS. WANG) Okay. So, is it fair to say 2 that you took into account both the Neuss '274 device 3 as well as the patent disclosures when you were 4 rendering your opinions about Neuss?</p> <p>5 A. Yes.</p> <p>6 Q. Okay. And is it fair to say that your 7 experience with the Neuss -- the Neuss device 8 influenced your opinion with respect to whether or 9 not the Neuss '274 patent anticipated claims 23 and 10 30 of the '738 patent?</p> <p>11 MR. ZAYED: Object to form.</p> <p>12 A. Reinforced it, yes.</p> <p>13 Q. (BY MS. WANG) So, in Neuss, on Page 60 -- 14 going back to Page 60.</p> <p>15 A. Correct.</p> <p>16 Q. You say: The coils are relatively strong as 17 well as tightly wound together, and not at all 18 "springy" under normal physiological forces.</p> <p>19 Is that correct?</p> <p>20 A. Yes.</p> <p>21 Q. And those are the same physiological forces 22 we've been talking about all day?</p> <p>23 A. Correct.</p> <p>24 Q. And when you say not "springy," you mean 25 that -- that they don't stretch and come back</p>	<p style="text-align: right;">Page 276</p> <p>1 off at 90 degrees mean that it necessarily provides 2 flexibility?</p> <p>3 MR. ZAYED: Object to form.</p> <p>4 Dr. Mullins, before you answer, review 5 as much of the patent as you want. She's citing you 6 to a specific passage on Column 4 and 5. And to 7 place it in context, you are entitled to review the 8 entire patent before answering the question.</p> <p>9 So, take whatever time you need.</p> <p>10 A. I think I can answer.</p> <p>11 Q. (BY MS. WANG) Okay.</p> <p>12 A. It is mechanically, machine-wise, crimp bent. 13 It's not a flexible bend. It's a crimp bend. And 14 once it bent, it keeps that shape. It doesn't become 15 flexible at all.</p> <p>16 Q. So the fact that it's 90 degrees didn't 17 provide any flexibility?</p> <p>18 A. No.</p> <p>19 Q. And then you say at the bottom of Page 60 to 20 the top of 61 -- well, let's start at the sentence 21 before, so you can have the full context: The force 22 required for placement -- for displacement is 23 inversely proportional to the spring diameter but is 24 also dependent on the material of the spring.</p> <p>25 Do you see that statement?</p>
<p style="text-align: right;">Page 275</p> <p>1 together?</p> <p>2 A. Correct. This is a very, very tight coil. 3 It depends on the tightness of the winding coil for 4 occlusion. There's no fabric. There's no anything 5 else. It's got to be a tightly wound coil.</p> <p>6 Q. Now, the Neuss '274 patent talks about, in 7 Column 4 if you look at it, it starts at Column 4, 8 Line 66, and goes to Column 5, about Line 11.</p> <p>9 A. Okay.</p> <p>10 Q. It -- it talks about the actual winds of the 11 device. So, it's: A shape which is designated a 12 helix is particularly suitable.</p> <p>13 In this case the primary shape is wound 14 helically, with the primary shape being bent off in 15 the center at right angles to the helix. And at a 16 distance from the first helix, a second helix, being 17 formed parallel to it, which second helix can, where 18 necessary, also have a smaller or larger diameter.</p> <p>19 Do you see that?</p> <p>20 A. Yeah, that's the one pictured in Figure 7.</p> <p>21 Q. It talks about the wire being bent off at 22 right angles.</p> <p>23 Do you see that?</p> <p>24 A. Right.</p> <p>25 Q. And doesn't the fact that the wire is bent</p>	<p style="text-align: right;">Page 277</p> <p>1 A. Yes.</p> <p>2 Q. So, do you mean that in order to determine 3 whether or not a coil is actually flexible, you have 4 to consider the material used for the coil?</p> <p>5 A. Correct.</p> <p>6 Q. And do you have to consider the way the coil 7 is heat treated?</p> <p>8 A. If it is a heat sensitive metal. If it were 9 the copper, no. If it were steel, yes.</p> <p>10 Q. It says: Applying this principle to Neuss 11 '274, which consists entirely of a single coil, one 12 of ordinary skill in the art would know that the 13 "enlarged diameter portions" would deform before the 14 central portion; to the extent that there's 15 flexibility in the disclosed device, it would be 16 attributed to the enlarged diameter portions rather 17 than the central portion.</p> <p>18 Do you see that?</p> <p>19 A. Yes.</p> <p>20 Q. So, you're saying that before the central 21 portion would flex, the enlarged diameter portions 22 would deform?</p> <p>23 A. Correct.</p> <p>24 Q. Is that right?</p> <p>25 And based on your understanding of claim 23</p>

70 (Pages 274 to 277)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 278</p> <p>1 of the patent, the '738 patent, that wouldn't meet 2 the limitations of claim 23? 3 A. Correct. 4 Q. And based on your understanding the claim 30 5 of the '738 patent, that wouldn't meet the 6 limitations of claim 30? 7 A. Correct. 8 Q. Now, I just want to make sure that before we 9 move on, I understand what your position about Neuss 10 is. 11 Does the fact that the Neuss '274 disclosed a 12 single coil device, that plays into your opinion that 13 the enlarged diameter portions would deform prior to 14 the tightly wound central portion? 15 A. Yes. 16 Q. So, in summary, Neuss -- sorry, I keep saying 17 Neuss name incorrectly -- Neuss discloses a 18 collapsible medical device? 19 MR. ZAYED: Same objections concerning 20 the summaries. Asked and answered. 21 A. Yes. 22 Q. (BY MS. WANG) Neuss discloses a device 23 including two enlarged diameter portions? 24 A. Correct. 25 Q. Neuss discloses a device that has a flexible</p>	<p style="text-align: right;">Page 280</p> <p>1 A. Right. 2 Q. And then, you don't dispute that the -- you 3 don't have an opinion that Neuss '274 does not 4 disclose a securing means? 5 MR. ZAYED: Object to form. 6 A. I know from a fact that it does have a 7 securing means. But I don't think it's disclosed in 8 the patent. 9 Q. (BY MS. WANG) But sitting here today, you're 10 not rendering an opinion -- 11 A. No. 12 Q. -- as to whether or not the Neuss '274 patent 13 discloses -- 14 A. No, I'm not. 15 Q. -- a securing means? 16 A. I'm saying that wasn't in something to argue 17 about, as far as I know. 18 Q. And then, the Neuss '274 patent is a device 19 having a collapse configuration for delivery through 20 a channel of a body? 21 A. Correct. 22 Q. Now, I think you said, and correct me if I'm 23 wrong, that the Neuss '274 device was resilient from 24 the time of deployment to the time of final seating 25 in the defect?</p>
<p style="text-align: right;">Page 279</p> <p>1 central portion that interconnects two enlarged 2 diameter portions? 3 MR. ZAYED: Objection. 4 A. Minimally flexible. 5 Q. (BY MS. WANG) When you say "minimally 6 flexible," you mean that it -- 7 A. In microns. 8 Q. Okay. So -- so, I think what you're saying 9 is that the coil is so tightly wound -- 10 A. Wound. 11 Q. -- that it doesn't actually allow any 12 flexibility? 13 A. Correct. 14 Q. Okay. And that's the central portion, right? 15 A. Correct. 16 Q. And then you're saying that the Neuss '274 17 patent doesn't allow lateral movement because of the 18 tightly wound coil? 19 A. Correct. 20 Q. And that any lateral movement comes from the 21 enlarged disk portions? 22 A. And even those don't move laterally. 23 Q. Okay. Because -- okay. So, it's your 24 position that the enlarged disk portions deform, but 25 they don't move laterally?</p>	<p style="text-align: right;">Page 281</p> <p>1 MR. ZAYED: Object to form. 2 A. As it's extruded off of the delivery wire, it 3 resumes its shape. But as soon as that delivery wire 4 is out of that portion of it, it's a fixed shape. 5 Q. (BY MS. WANG) Okay. So, based on that, it's 6 your opinion that once it's fixed, it's no longer 7 resilient? 8 A. Correct. 9 Q. Okay. And then -- and once it's fixed, it 10 doesn't pull the enlarged diameter portions together; 11 is that right? 12 A. No. 13 Q. And so, any pulling of the enlarged diameter 14 portions together results from the time between 15 deployment to the time of full deployment? 16 MR. ZAYED: Objection; form. 17 A. Or from the end disks being too narrow from 18 the -- for the tube it's in, or the -- 19 Q. Okay. 20 A. They pull it together. 21 Q. Uh-huh. 22 A. But not the central coil. 23 Q. Okay. And then you also say that the Neuss 24 '274 patent does not disclose a stretchable portion 25 once it's fully deployed?</p>

71 (Pages 278 to 281)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 282</p> <p>1 A. Correct.</p> <p>2 Q. And that any stretching would result in</p> <p>3 deforming the disks before the stretching would</p> <p>4 occur?</p> <p>5 A. If your pulling from the edges of the disk,</p> <p>6 yes.</p> <p>7 Q. And what if you're pushing from the inside?</p> <p>8 A. Tissues pushing from the inside? No.</p> <p>9 Q. I'm handing you what's been marked as</p> <p>10 Exhibits 309 and 310 to the deposition.</p> <p>11 A. Got it.</p> <p>12 (Discussion off the record.)</p> <p>13 (Exhibits 310 and 311 are marked.)</p> <p>14 Q. (BY MS. WANG) I'm handing you what's been</p> <p>15 marked as Exhibit 310 and 311.</p> <p>16 310 is going to be the Latson 300 -- '033</p> <p>17 patent and the figure from the Latson patent is going</p> <p>18 to be 311. So --</p> <p>19 MR. ZAYED: He doesn't have it in</p> <p>20 front of him.</p> <p>21 Q. (BY MS. WANG) Oh, I'm sorry.</p> <p>22 A. But I've seen the patent.</p> <p>23 Q. Okay. Can you identify Exhibit 310 for the</p> <p>24 record?</p> <p>25 A. Me?</p>	<p style="text-align: right;">Page 284</p> <p>1 A. Correct.</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 Q. (BY MS. WANG) So, simply because there is a</p> <p>4 spiral-shaped central portion, to you, as a person of</p> <p>5 ordinary skill of the art, does not necessarily mean</p> <p>6 that that's flexible?</p> <p>7 A. Correct.</p> <p>8 Q. And it doesn't necessarily mean that it's</p> <p>9 capable of lateral movement?</p> <p>10 A. Definitely not capable of lateral movement.</p> <p>11 Q. Okay. Now, in terms of the Latson '003</p> <p>12 reference, you -- there is a discussion on the top of</p> <p>13 the Page 65 that says: Further, even if the central</p> <p>14 portion of Latson '003 includes Wire 9, Latson '003</p> <p>15 does not suggest or teach that the central portion of</p> <p>16 the device is flexible to allow lateral movement.</p> <p>17 A. Correct.</p> <p>18 Q. Do you see that?</p> <p>19 But in your definition of what the central</p> <p>20 portion is, you don't include Wire 9?</p> <p>21 A. No.</p> <p>22 Q. And you don't include Wire 9, even though</p> <p>23 it's threaded through Part 7?</p> <p>24 A. Through the center, no.</p> <p>25 Q. Okay. Then you also say that -- I'm sorry,</p>
<p style="text-align: right;">Page 283</p> <p>1 Q. Yes.</p> <p>2 A. 310 is the Latson patent.</p> <p>3 Q. Okay. And on Exhibit 311, can you identify</p> <p>4 what the central portion is?</p> <p>5 A. In the figure, I would call the central</p> <p>6 portion 7.</p> <p>7 Q. And that's that coil-shaped portion</p> <p>8 between --</p> <p>9 A. The metal band, yes.</p> <p>10 Q. -- between the two enlarged disk portions?</p> <p>11 A. Correct.</p> <p>12 Q. And so, if you want to turn to Pages 64 and</p> <p>13 65 in your report --</p> <p>14 A. All right.</p> <p>15 Q. -- that's where you talked about Latson.</p> <p>16 So, the portion that you pointed to, which is</p> <p>17 7 on Exhibit 311 is shaped in a spiral configuration?</p> <p>18 MR. ZAYED: Object to form.</p> <p>19 A. In the drawing. It's never described as a</p> <p>20 spiral.</p> <p>21 Q. (BY MS. WANG) Okay. But in the drawing, it</p> <p>22 is depicted as a spiral?</p> <p>23 A. Correct.</p> <p>24 Q. And the -- and you understand that the</p> <p>25 figures of a patent are part of its disclosure?</p>	<p style="text-align: right;">Page 285</p> <p>1 I . . .</p> <p>2 Latson also discloses a device with sacs on</p> <p>3 the two enlarged portions?</p> <p>4 A. Correct.</p> <p>5 Q. And I think it's part of your opinion on</p> <p>6 Page 64 that the center -- the center connector's</p> <p>7 purpose is simply to join the two sacs together; is</p> <p>8 that right?</p> <p>9 A. Correct.</p> <p>10 Q. And it's radio-opaque?</p> <p>11 A. I'm not sure the sac is radio-opaque.</p> <p>12 Q. I'm sorry. I meant the central portion is</p> <p>13 radio-opaque?</p> <p>14 A. The central portion is radio-opaque.</p> <p>15 Q. And as a person of ordinary skill in the art,</p> <p>16 is it significant that that central portion is</p> <p>17 radio-opaque?</p> <p>18 A. Very definitely. It would be no other way to</p> <p>19 tell where it is. The sacs, I'm almost sure, are not</p> <p>20 radio-opaque. There's mention of -- I don't know of</p> <p>21 a radio-opaque cloth fabric.</p> <p>22 Q. Right. And so, that radio-opaque marker</p> <p>23 helps seat the device?</p> <p>24 A. The marker of where it is, yes.</p> <p>25 Q. Looking back at the disclosure of Latson</p>

72 (Pages 282 to 285)

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3/6/2013

<p style="text-align: right;">Page 286</p> <p>1 '003, Latson '003 contemplates that it can be used to 2 treat an ASD or a PFO; is that right? 3 A. Correct. 4 Q. And do you know, Dr. Latson? 5 A. Yes. 6 Q. And do you know, I assume, Dr. Kapitan? 7 A. No. 8 Q. Okay. Have you had any occasion to talk to 9 Dr. Latson about this patent? 10 A. About the device, but not the patent. 11 Q. Okay. Did you discuss with Dr. Latson your 12 expert report at all? 13 A. No. 14 Q. And did you confer with him before rendering 15 your opinion in this case? 16 A. No. 17 Q. So, just to be clear, in terms of 18 Latson '003, you would agree that it discloses a 19 collapsible medical device? 20 MR. ZAYED: Same objections running 21 through the claims. Mischaracterizes the testimony. 22 Taking the report out of the context. 23 A. Yes. 24 Q. (BY MS. WANG) And you would agree that 25 Latson '003 device has two enlarged diameter</p>	<p style="text-align: right;">Page 288</p> <p>1 A. Right. 2 Q. (BY MS. WANG) And you dispute that that 3 rigid central coil allows stretchability? 4 A. Right. 5 MR. ZAYED: Object to form. 6 Q. (BY MS. WANG) And is that time from at the 7 time of full deployment? 8 A. Correct. 9 Q. I'm handing you what's been marked 312 to 10 313. And 312 is the Forber '294 patent and 313 is 11 Figure 1 from Forber. 12 (Exhibits 312 and 313 are marked.) 13 Q. (BY MS. WANG) Have you seen these documents 14 before? 15 A. Yes. 16 Q. And using Figure 1 on Exhibit 313, can you 17 identify what you, as a person of ordinary skill in 18 the art, would think of as the central portion? 19 MR. ZAYED: Object to form. 20 A. The item labeled No. 25. 21 Q. (BY MS. WANG) You don't include Items 23 or 22 27 as part of the central portion? 23 MR. ZAYED: Object to form. 24 A. 23, no. 25 Q. (BY MS. WANG) Okay.</p>
<p style="text-align: right;">Page 287</p> <p>1 portions? 2 A. Correct. 3 Q. You would agree that Latson '003 has a 4 proximal and distal end? 5 A. Correct. 6 Q. And you would agree that -- or I guess, you 7 don't render an opinion as to whether or not the 8 Latson '003 has a securing means on the proximal or 9 distal end? 10 A. No. 11 Q. And you're not here to disclose one today? 12 A. No. 13 Q. And you would agree that Latson '003 has a 14 collapse configuration for the delivery of the device 15 through a channel in the patient's body? 16 A. Correct. 17 Q. So you dispute, as a person of ordinary skill 18 in the art, that that rigid central spiral shape 19 allows lateral movement; is that correct? 20 A. Absolutely. 21 MR. ZAYED: Object to form. 22 Q. (BY MS. WANG) And you dispute that that 23 rigid central coil allows for splaying -- I'm sorry, 24 not splaying -- resiliency? 25 MR. ZAYED: Object to form.</p>	<p style="text-align: right;">Page 289</p> <p>1 A. They're the end portions. 2 Q. Okay. So, in the Forber '294 patent, you 3 dispute on Page 20 -- I'm sorry, 71 -- 4 A. Okay. 5 Q. -- that Forber '294 discloses a means for 6 securing? 7 A. In this one, it doesn't disclose a means of 8 securing. 9 Q. And that's something that you specifically 10 had an opinion on; is that right? 11 A. Well, I noticed it, wondering how you get it 12 back out. 13 Q. Do you know whether or not that theory was 14 disclosed in AGA's prior art charts? 15 A. No. 16 Q. You don't know, or was it not disclosed? 17 A. I don't know. 18 Q. Did you have a role in putting together AGA's 19 prior art charts? 20 MR. ZAYED: Object to form, outside of 21 scope of this deposition. 22 You're instructed not answer. 23 MS. WANG: You're instructing him not 24 answer -- 25 MR. ZAYED: Yes.</p>

73 (Pages 286 to 289)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 290</p> <p>1 MS. WANG: -- about what he's done as 2 an expert in this case?</p> <p>3 MR. ZAYED: There's things -- he's 4 here to talk about his report. He's talking about 5 the opinions in the report, the basis for the 6 reports, any facts in his report and his 7 qualifications.</p> <p>8 There's nothing in here to have him 9 discuss other things that I may have had him do. 10 That's not relevant to this case.</p> <p>11 MS. WANG:</p> <p>12 Q. (BY MS. WANG) Okay. Are you following 13 your -- AGA's counsel's instructions to you?</p> <p>14 A. I guess so. So, definitely.</p> <p>15 Q. Okay. So, you, on Page 71, state that Forber 16 '294 doesn't disclose a means for securing; is that 17 right?</p> <p>18 A. Correct.</p> <p>19 Q. And you understand that Forber '294 discloses 20 a pusher core and a pusher, for lack of a better -- 21 well, actually I think that's how they're described 22 in the patent.</p> <p>23 A. Correct.</p> <p>24 MR. ZAYED: Object to form. 25 Can you point us to a point in his</p>	<p style="text-align: right;">Page 292</p> <p>1 pulling band assemblies 23 and 27 away from middle 2 band assembly 25, which strengthens -- which 3 straightens the loop to the wire and thereby allows 4 device 20 to be of a diameter that will fit inside a 5 device pusher 40.</p> <p>6 Do you see that?</p> <p>7 A. Yeah.</p> <p>8 Q. And so, the device pusher is different than 9 the pusher core, is that correct, Dr. Mullins?</p> <p>10 A. I presume. The diagrams are not that clear 11 to me. But I think it's different, yes.</p> <p>12 Q. Okay. So, if you look at Figure 5-A of the 13 patent, the pusher is identified as 40 and the pusher 14 core is identified as 42.</p> <p>15 Do you see that?</p> <p>16 A. 40 and 42, correct.</p> <p>17 Q. And so, 40 is actually holding the device in 18 a collapsed form?</p> <p>19 MR. ZAYED: Object to form.</p> <p>20 Q. (BY MS. WANG) Is that right?</p> <p>21 A. Right.</p> <p>22 MR. ZAYED: Dr. Mullins, before 23 answering these questions, I think you should review 24 the patent and go find what Figure 5-A discusses in 25 the patent and what it says about Figures 40 and 42</p>
<p style="text-align: right;">Page 291</p> <p>1 report that you're asking about?</p> <p>2 THE WITNESS: 271.</p> <p>3 MS. WANG: I think I did, 271.</p> <p>4 THE WITNESS: Middle paragraph.</p> <p>5 MR. ZAYED: I guess, where in 271?</p> <p>6 THE WITNESS: The middle paragraph.</p> <p>7 MR. ZAYED: Okay. I'm glad you're 8 following her because it's very difficult for me to 9 follow her.</p> <p>10 Q. (BY MS. WANG) Okay. So, now that we're all 11 at the same place, you say: Forber '294 discloses 12 only a pusher core that pushes against the band 13 assembly 27.</p> <p>14 A. Correct.</p> <p>15 Q. But doesn't Forber '274 also disclose a 16 pusher?</p> <p>17 MR. ZAYED: Can you identify it by 18 column and lines what you're talking about? Or do 19 you want him to read the entire patent?</p> <p>20 Q. (BY MS. WANG) Well, why don't we go to, 21 let's see, Column 4. And then he cites Lines 66 22 through 67.</p> <p>23 But I would actually like to have you look 24 above that, starting at Line 55.</p> <p>25 And it says: Device 20 is stretched by</p>	<p style="text-align: right;">Page 293</p> <p>1 before you answer, unless you know this off the top 2 of your head.</p> <p>3 THE WITNESS: I think I know this off 4 the top of my head.</p> <p>5 Q. (BY MS. WANG) Okay. So, 40 is holding the 6 device in the collapse configuration; is that right?</p> <p>7 A. That's the same purpose as a catheter in all 8 the other devices or sheath, yes.</p> <p>9 Q. Okay. And it correct to say that you didn't 10 include 40 as part of your analysis of whether or not 11 40 -- Forber '294 had a securing means?</p> <p>12 A. 40 is a constraining, but not holding, 13 device.</p> <p>14 Q. Okay.</p> <p>15 A. And I don't see any mention or -- or anything 16 about screwing in or attaching to that pusher.</p> <p>17 Q. Okay. So, just so that the record is clear, 18 and I'm not trying to snag you, but in determining -- 19 in rendering an opinion that Forber '294 does not 20 have a securing means, you didn't account for pusher 21 40?</p> <p>22 A. Yeah, I accounted for pusher 40. It doesn't 23 attach to 27. It just pushes up against it.</p> <p>24 Q. Okay. And even though it -- the device 25 pushes up against 40 and it has an interference</p>

74 (Pages 290 to 293)

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3/6/2013

<p style="text-align: right;">Page 294</p> <p>1 between 40 and the device, you didn't consider that</p> <p>2 part of the securing means?</p> <p>3 MR. ZAYED: Object to form.</p> <p>4 A. No, absolutely not. I mean, this is a -- a</p> <p>5 push within a tube. Pushing it with a pencil or a --</p> <p>6 you know, with -- with a more rigid rod, but it's not</p> <p>7 attached to the device.</p> <p>8 Q. (BY MS. WANG) Okay. And so, you understand</p> <p>9 that the Court construed a means for securing as a</p> <p>10 means plus function claim?</p> <p>11 A. I guess, yeah.</p> <p>12 Q. Well, I can point you to it.</p> <p>13 A. Well, as a means for function of securing the</p> <p>14 device so you can retrieve it, is my interpretation.</p> <p>15 And this is not retrievable.</p> <p>16 Q. Okay. So, again, before we move on, Forber</p> <p>17 discloses a collapsible medical device?</p> <p>18 MR. ZAYED: Same objection to this</p> <p>19 line of questioning as in the other places.</p> <p>20 Q. (BY MS. WANG) And it discloses a device with</p> <p>21 two enlarged diameter portions?</p> <p>22 A. Correct.</p> <p>23 Q. But because the central portion is rigid,</p> <p>24 you -- it's your opinion that it's not flexible?</p> <p>25 A. Absolutely.</p>	<p style="text-align: right;">Page 296</p> <p>1 MS. WANG: Okay. Let's take a quick</p> <p>2 break.</p> <p>3 THE VIDEOGRAPHER: The time is 4:44</p> <p>4 and we're off the record.</p> <p>5 (Break.)</p> <p>6 THE VIDEOGRAPHER: The time is 4:57,</p> <p>7 and we're on the record.</p> <p>8 Q. (BY MS. WANG) Okay. Dr. Mullins, let me</p> <p>9 have you turn to Page 81 of your report, which is</p> <p>10 where your obviousness arguments begin for -- oh, I'm</p> <p>11 sorry. It would be page 74. So, that's where your</p> <p>12 obviousness arguments start.</p> <p>13 A. Okay.</p> <p>14 Q. Okay. So, you're of the opinion that the</p> <p>15 Kotula '552 patent alone, or in combination with</p> <p>16 Neuss, Krmek, or Kamiya, does not render the asserted</p> <p>17 claims obvious, right?</p> <p>18 A. Absolutely.</p> <p>19 Q. And that's based on your opinion that there</p> <p>20 is no disclosure in the Kotula '552 patent that you</p> <p>21 would vary the shape of the central portion?</p> <p>22 A. Correct.</p> <p>23 MR. ZAYED: Object to form.</p> <p>24 Q. (BY MS. WANG) And that's also based on the</p> <p>25 fact that it's your opinion that the disclosure of</p>
<p style="text-align: right;">Page 295</p> <p>1 Q. And it's your opinion that you -- that the</p> <p>2 central portion doesn't allow lateral movement of the</p> <p>3 two enlarged portions?</p> <p>4 A. Not without distortion of the portions.</p> <p>5 Q. So, when you say "without distortion of the</p> <p>6 portions," in order to move the portions laterally,</p> <p>7 you would have so distort the enlarged diameter</p> <p>8 portions?</p> <p>9 A. Right. Markedly distort.</p> <p>10 Q. And you identified -- I'm sorry. You</p> <p>11 understand Forber '294 to have a proximal and distal</p> <p>12 end?</p> <p>13 A. Correct.</p> <p>14 Q. And you don't think that Forber has a means</p> <p>15 for securing?</p> <p>16 A. Correct.</p> <p>17 Q. But you agree that the device has a collapse</p> <p>18 configuration?</p> <p>19 A. Correct.</p> <p>20 Q. And in determining what that central portion</p> <p>21 is on 25 --</p> <p>22 A. Correct.</p> <p>23 Q. -- you don't include any of the wires that</p> <p>24 extend from 25?</p> <p>25 A. No.</p>	<p style="text-align: right;">Page 297</p> <p>1 the Kotula '552 patent does not disclose a spiral</p> <p>2 shape?</p> <p>3 A. Correct.</p> <p>4 Q. And so, it's your opinion that even though</p> <p>5 these were all in the arts before the '738 patent,</p> <p>6 you wouldn't combine a coiled central portion to</p> <p>7 the Kotula '552 because the disclosure of the Kotula</p> <p>8 '552 doesn't talk about varying shape or a spiral</p> <p>9 shape?</p> <p>10 MR. ZAYED: Object to form.</p> <p>11 A. And the central portion of the '552 is one of</p> <p>12 the most important parts of that. So, anything to</p> <p>13 distort that is going to be nonsense.</p> <p>14 Q. (BY MS. WANG) Right. So, it's based on your</p> <p>15 interpretation of what that -- the Kotula '552 patent</p> <p>16 discloses about its central portion?</p> <p>17 A. Correct.</p> <p>18 Q. And other than the opinions state in your</p> <p>19 written report about why it's not obvious so the</p> <p>20 combinations of Kotula with the other three</p> <p>21 references are Kotula alone --</p> <p>22 A. Right.</p> <p>23 Q. -- other than what's stated in your report,</p> <p>24 you don't have any additional opinions, do you?</p> <p>25 A. No. I may not have repeated the same thing</p>

75 (Pages 294 to 297)

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3/6/2013

<p style="text-align: right;">Page 298</p> <p>1 over and over for different once. I tried to, but it</p> <p>2 was pretty much the same argument.</p> <p>3 Q. Sure. And all your arguments are for the</p> <p>4 most -- for -- somewhere in this report; is that</p> <p>5 right?</p> <p>6 A. Yes.</p> <p>7 Q. And then, the same for the ASO device. For</p> <p>8 the ASO device, it's your opinion that it wouldn't</p> <p>9 have been obvious to change the ASO device to</p> <p>10 include a coiled central portion because the</p> <p>11 disclosure of the '552 patent, in your</p> <p>12 interpretation, doesn't disclose changing the shape</p> <p>13 of the central portion?</p> <p>14 MR. ZAYED: Object to form.</p> <p>15 A. Correct.</p> <p>16 Q. (BY MS. WANG) And other than what's set</p> <p>17 forth in your written expert report about the ASO</p> <p>18 device alone, or in combination with Neuss, Krmek, or</p> <p>19 Kamiya, you don't have any additional opinions?</p> <p>20 A. I don't think so.</p> <p>21 Q. And you've set forth all the facts and data</p> <p>22 that you consider for obviousness, both on the Kotula</p> <p>23 '552 patent and the ASO device?</p> <p>24 A. Yes.</p> <p>25 Q. Now, you also have the opinion that it</p>	<p style="text-align: right;">Page 300</p> <p>1 Q. And then on Page 85, you go on to say: The</p> <p>2 cylindrical central portion --</p> <p>3 MR. ZAYED: Exactly where on Page 85,</p> <p>4 Counsel?</p> <p>5 MS. WANG: Let me get it for you.</p> <p>6 THE WITNESS: The bottom of the first</p> <p>7 paragraph, the last sentence.</p> <p>8 MS. WANG: Yeah.</p> <p>9 Q. (BY MS. WANG) -- the purpose of the</p> <p>10 disclosed coil between the flanges is to "tightly"</p> <p>11 hold the "closing plug" in place. The cylindrical</p> <p>12 central portion of the Kotula '552 is simpler and at</p> <p>13 least as effective for holding the disks disclosed</p> <p>14 therein together.</p> <p>15 In addition, it's my opinion that one of</p> <p>16 ordinary skill in the art would not know how to</p> <p>17 combine the unitary structure of the Kotula '552</p> <p>18 device with the thermally fixed portion of the</p> <p>19 central portion of the Kamiya '301 device without the</p> <p>20 complete unraveling of the combined device. Thus,</p> <p>21 there would be absolutely no motivation to</p> <p>22 incorporate any central portion of the Kamiya '301</p> <p>23 device into the Kotula '552 device.</p> <p>24 Do you see that?</p> <p>25 A. Correct.</p>
<p style="text-align: right;">Page 299</p> <p>1 wouldn't be obvious for a person of ordinary skill</p> <p>2 in the art to combine Kotula with Kamiya; is that</p> <p>3 right?</p> <p>4 A. Very definitely.</p> <p>5 Q. Okay. And, I'm going to just get you to the</p> <p>6 section. It's starts on Page 84 and goes to 85.</p> <p>7 A. Okay.</p> <p>8 Q. And actually follows into Page 86. So, it's</p> <p>9 a combination of Kotula plus Kamiya?</p> <p>10 A. Okay.</p> <p>11 Q. Okay. So it's your opinion that it wouldn't</p> <p>12 be obvious for a person of ordinary skill in the art</p> <p>13 to combine Kamiya '301 with Kotula '552; is that</p> <p>14 right?</p> <p>15 A. Right.</p> <p>16 Q. And one of the reasons that you say it</p> <p>17 wouldn't be obvious is that the materials of Kotula</p> <p>18 and Kamiya are different, so that combining the</p> <p>19 material of Kotula '552 with the central portion of</p> <p>20 Kamiya '301 wouldn't work; is that right?</p> <p>21 A. Correct.</p> <p>22 Q. So, on Page 85 of the report, you say that</p> <p>23 the disclosed coil is made of a thermally set memory</p> <p>24 shape alloy or polymer?</p> <p>25 A. Correct.</p>	<p style="text-align: right;">Page 301</p> <p>1 Q. So, it's your opinion that a person of</p> <p>2 ordinary skill in the art wouldn't substitute the</p> <p>3 materials or interchange the materials between Kotula</p> <p>4 '552 and Kamiya '301?</p> <p>5 A. Correct.</p> <p>6 Q. Now I'm going to hand you what will be marked</p> <p>7 as 314.</p> <p>8 (Exhibit 314 is marked.)</p> <p>9 Q. (BY MS. WANG) And can you identify</p> <p>10 Exhibit 315 -- 314 for the record, please.</p> <p>11 A. This is Terry Sideris' -- one of his patents,</p> <p>12 on the button device. I don't know which model of</p> <p>13 the button device, but --</p> <p>14 Q. Okay. And looking at the Sideris patent, it</p> <p>15 sounds like you know Dr. Sideris.</p> <p>16 A. Yes.</p> <p>17 Q. And did you have any issue -- I'm glad you</p> <p>18 called him "Terry" because I wouldn't be able to say</p> <p>19 his first name.</p> <p>20 Did you have any occasion to discuss this --</p> <p>21 your work in this case with Sideris?</p> <p>22 A. No.</p> <p>23 Q. And looking at Figure 5 of the Sideris</p> <p>24 patent --</p> <p>25 A. All right.</p>

76 (Pages 298 to 301)

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3/6/2013

<p style="text-align: right;">Page 302</p> <p>1 Q. -- could you identify for me what the central 2 portion of the subsidiary device is? 3 A. It doesn't have a label, but it's between 38 4 and 34. 5 Q. So, it's that -- 6 A. That string. 7 Q. Okay. And in Figure 5, is the -- are the two 8 enlarged disk portions 34 and 38? 9 A. Yes. 10 Q. And are those laterally offset from each 11 other? 12 MR. ZAYED: Object to form. 13 A. Yeah. They're tied together with a piece of 14 string. 15 Q. (BY MS. WANG) But they're laterally offset 16 from each other? 17 MR. ZAYED: Object to form. 18 A. Yes. 19 Q. (BY MS. WANG) And so, the central portion of 20 the Sideris patent is flexible? 21 A. Correct. 22 Q. And it allows lateral movement? 23 A. Correct. 24 Q. It stretches and comes back together; is that 25 right?</p>	<p style="text-align: right;">Page 304</p> <p>1 MR. ZAYED: Object to form. The 2 document speaks for itself. It discloses what it 3 discloses. 4 Q. (BY MS. WANG) Okay. So, could I turn your 5 attention back to the Lock device of 314. 6 A. 314? 7 Q. I'm sorry, it's not 314. 8 MR. McCOY: Is it 294? 9 Q. (BY MS. WANG) 294. 10 A. Okay. That seems more -- all right. 11 Q. Okay. So, I just want to make sure that I 12 understand what your interpretation of Lock was. 13 Have you found it, Doctor? 14 A. Yeah. 15 Q. So, you would agree that Lock '235 discloses 16 a -- a collapsible device? 17 A. Correct. 18 Q. And that it -- that medical device includes 19 two enlarged diameter portions? 20 MR. ZAYED: Same objections concerning 21 this line of questioning. 22 MS. WANG: I'm sorry. It's 23 Exhibit 295, just so the record's clear. 24 A. Yeah, I've got it. 25 Q. (BY MS. WANG) And that it -- it includes a</p>
<p style="text-align: right;">Page 303</p> <p>1 A. In one version of it, the rubber band 2 version. But I think that's Version 5 or 3 something. 4 Q. Okay. Do you have an opinion as to whether 5 or not the Sideris '488 patent discloses a central 6 portion that stretches and comes back together? 7 MR. ZAYED: Object to form. 8 A. But it's does not shape to form. 9 Q. (BY MS. WANG) But just putting aside the 10 "shaped to form" element, which I understand -- 11 A. That's a critical part of the patent. That's 12 the claim. 13 MR. ZAYED: That's claim 23. 14 Q. (BY MS. WANG) Okay. So putting aside the 15 "shaped to form" issue, does the central portion of 16 the device disclosed in the '488 patent allow 17 stretching and coming back together? 18 A. I'm not sure if this is the rubber band 19 version or the string version or the multiple button 20 version, but one of them does, the rubber band 21 version. 22 Q. Okay. And you would -- you would anticipate 23 that if the '488 patent allows that resiliency, it 24 would be disclosed in the '488? 25 A. Yeah.</p>	<p style="text-align: right;">Page 305</p> <p>1 flexible portion that allows lateral movement; is 2 that right? 3 MR. ZAYED: Object to form. 4 Mischaracterizes the device. 5 A. One version does. 6 Q. (BY MS. WANG) Okay. And that version is 7 depicted in the -- the Lock patent as Figure 9 and 8 was Exhibit 296 to the deposition? 9 A. Correct. 10 Q. And you agree that the Lock patent has a 11 proximal and distal end? 12 A. Correct. 13 Q. And you agree that the product -- at least 14 one of the proximal distal ends of the Lock device 15 has a means for securing? 16 A. Correct. 17 Q. And you agree that that the Lock device 18 discloses -- I'm sorry, the Lock '235 patent 19 discloses a device having a collapse configuration 20 for delivery through a channel of a patient's body? 21 A. Correct. 22 Q. But you dispute that Lock has a central 23 portion that's stretchable? 24 A. Correct. 25 Q. And you --</p>

77 (Pages 302 to 305)

CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 306</p> <p>1 A. Or that's elastic.</p> <p>2 Q. That's elastic?</p> <p>3 A. Right.</p> <p>4 Q. And so, what's the difference between</p> <p>5 "elastic" and "stretchable"?</p> <p>6 A. Well, this says mechanical slip rings that</p> <p>7 pull apart, but they don't pull back together.</p> <p>8 Q. Okay. So you -- so you would say that it's</p> <p>9 stretchable, but it doesn't come back together?</p> <p>10 A. Correct.</p> <p>11 Q. And -- and when the Lock device that's</p> <p>12 disclosed in the '235 device -- I'm sorry, '235</p> <p>13 patent stretches because of those rings in the</p> <p>14 middle --</p> <p>15 A. Loops. They're like -- they're like paper</p> <p>16 clip.</p> <p>17 Q. Okay.</p> <p>18 A. Loops.</p> <p>19 Q. So paper clips.</p> <p>20 A. Yeah.</p> <p>21 Q. The two enlarged diameter portions stay in</p> <p>22 their preset configuration?</p> <p>23 MR. ZAYED: Object to form.</p> <p>24 A. When they're stretched out?</p> <p>25 Q. (BY MS. WANG) Yeah.</p>	<p style="text-align: right;">Page 308</p> <p>1 MR. McCOY: 315 and 316.</p> <p>2 MS. WANG: Okay.</p> <p>3 (Exhibits 315 and 316 are marked.)</p> <p>4 Q. (BY MS. WANG) Okay. So you have before you</p> <p>5 as Exhibit 315 the '217 patent from Das.</p> <p>6 A. Yes.</p> <p>7 Q. And then 316 is a Das article from 1993; is</p> <p>8 that right?</p> <p>9 A. Correct.</p> <p>10 Q. And so, it's your opinion that Das alone</p> <p>11 doesn't render claims 23 and 30 obvious; is that</p> <p>12 right?</p> <p>13 MR. ZAYED: Would you -- what page of</p> <p>14 his opinion are you referring to?</p> <p>15 A. By far and away.</p> <p>16 Q. (BY MS. WANG) It's page -- it starts at</p> <p>17 Page 102, Dr. Mullins.</p> <p>18 A. Okay. No, it would be impossible.</p> <p>19 Q. I'm sorry.</p> <p>20 A. Combining it would be impossible.</p> <p>21 Q. Okay. So, you say that it's your opinion</p> <p>22 that it would be impossible to combine Das with any</p> <p>23 of the --</p> <p>24 A. Yes.</p> <p>25 Q. -- of the other references in order to get to</p>
<p style="text-align: right;">Page 307</p> <p>1 A. Yes.</p> <p>2 Q. But they just don't stretch back in?</p> <p>3 A. Correct.</p> <p>4 Q. And it's your opinion that Lock, in</p> <p>5 combination with Kamiya -- you wouldn't combine those</p> <p>6 two references together?</p> <p>7 A. No.</p> <p>8 Q. And you wouldn't combine those two references</p> <p>9 together, even though both references have enlarged</p> <p>10 diameter portions with essentially a wire central</p> <p>11 portion?</p> <p>12 MR. ZAYED: Object to form,</p> <p>13 mischaracterizes --</p> <p>14 A. Correct.</p> <p>15 MR. ZAYED: -- the documents.</p> <p>16 Q. (BY MS. WANG) Okay. I'm going to hand</p> <p>17 you --</p> <p>18 MR. ZAYED: Are you done with Lock?</p> <p>19 MS. WANG: I am done with Lock.</p> <p>20 Q. (BY MS. WANG) The Das 217 patent, and the</p> <p>21 1993 article.</p> <p>22 MR. McCOY: I assume this has been</p> <p>23 marked previously in this case.</p> <p>24 MS. WANG: I don't think so. Let's</p> <p>25 just remark it at this point.</p>	<p style="text-align: right;">Page 309</p> <p>1 the invention of the '738 patent; is that right?</p> <p>2 A. Yes.</p> <p>3 Q. And so, one of the reasons that it -- that</p> <p>4 you state that it would be impossible is because Das</p> <p>5 and Kotula are made of very different materials; is</p> <p>6 that right?</p> <p>7 A. That -- the basic design is totally</p> <p>8 different. The Das has a concentric ring that if you</p> <p>9 take -- do anything to that concentric ring, you've</p> <p>10 destroyed the whole device, all the occlusion</p> <p>11 properties.</p> <p>12 Q. So, when you say the "Das device," are you</p> <p>13 talking about the Das device disclosed in the '217</p> <p>14 patent or are you talking about the Angle Wings</p> <p>15 device?</p> <p>16 A. Both of them.</p> <p>17 Q. Okay. So, it's your opinion, and what you</p> <p>18 worked under, that the Angle Wings device embodies</p> <p>19 the '217 patent; is that right?</p> <p>20 A. Yes.</p> <p>21 Q. So, it's your opinion, because the Das patent</p> <p>22 and the Kotula '552 patent are such fundamentally</p> <p>23 different designs that it would be impossible to</p> <p>24 combine them?</p> <p>25 A. Correct.</p>

78 (Pages 306 to 309)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 310</p> <p>1 Q. And one of the reasons that they're</p> <p>2 fundamentally different designs is because they</p> <p>3 contemplate very different materials for use; is that</p> <p>4 right?</p> <p>5 MR. ZAYED: Object to form.</p> <p>6 A. It is part of the reason, but not all of it.</p> <p>7 Q. Okay.</p> <p>8 A. The basic design is the reason.</p> <p>9 Q. Right.</p> <p>10 A. The design.</p> <p>11 Q. Okay. So, I want just to point you to</p> <p>12 Page 108, and it's the second sentence in the first</p> <p>13 full paragraph.</p> <p>14 A. My 108?</p> <p>15 Q. Yes.</p> <p>16 A. Okay.</p> <p>17 Q. All right. And it starts: However, any</p> <p>18 nitinol taught by Das '217 is only included in Das</p> <p>19 '217 device around the periphery of the disks or in a</p> <p>20 vague manner in addition to the adhesive stitching or</p> <p>21 heat bonding that's used to affix the two membranes</p> <p>22 directly to one another. But Dr. Gorman's report</p> <p>23 does not explain how the wire mesh of the Kotula '552</p> <p>24 central portion could be incorporated into the Das</p> <p>25 '217 patent without its complete unraveling. It is</p>	<p style="text-align: right;">Page 312</p> <p>1 nexus to the patented feature at issue.</p> <p>2 Do you understand that?</p> <p>3 MR. ZAYED: Object to form.</p> <p>4 A. I think so.</p> <p>5 Q. (BY MS. WANG) Was that explained to you at</p> <p>6 all?</p> <p>7 MR. ZAYED: Object to form.</p> <p>8 A. Yeah, I -- it -- I still -- I kind of</p> <p>9 understand secondary considerations, but not all the</p> <p>10 reasons behind them.</p> <p>11 Q. (BY MS. WANG) Okay.</p> <p>12 A. Do I have to have that -- know that?</p> <p>13 Q. All right. Well, just looking at the section</p> <p>14 of Secondary Considerations of Non-obviousness that</p> <p>15 start at Page 116 --</p> <p>16 A. Right.</p> <p>17 Q. -- I think we previously established that you</p> <p>18 were told, and you understood for the purposes of</p> <p>19 this expert report, that none of the AGA devices</p> <p>20 embody claims 23 or 30; is that right?</p> <p>21 A. None of them -- of the AGA -- correct of --</p> <p>22 Q. Okay.</p> <p>23 A. -- of the previous AGA devices.</p> <p>24 Q. Right.</p> <p>25 A. Yes.</p>
<p style="text-align: right;">Page 311</p> <p>1 my opinion that a person of ordinary skill in the art</p> <p>2 would not be motivated or able to make such a</p> <p>3 combination.</p> <p>4 Do you see that statement?</p> <p>5 A. Yes.</p> <p>6 Q. So, part of that statement is your opinion</p> <p>7 that the materials discussed in Das and Kotula aren't</p> <p>8 interchangeable?</p> <p>9 A. Yeah.</p> <p>10 Q. I'm going to ask you to look at the last</p> <p>11 section of your report, or the second to last</p> <p>12 section, that talks about "Secondary Considerations</p> <p>13 of Non-Obviousness."</p> <p>14 And when you're there, you can just let me</p> <p>15 know. It's on Page 116.</p> <p>16 A. 1- -- okay.</p> <p>17 Q. Are you there?</p> <p>18 A. Yeah.</p> <p>19 Q. Okay. So, you understand that one thing to</p> <p>20 consider as to whether or not a patent or patent</p> <p>21 claims are obvious are these secondary</p> <p>22 considerations?</p> <p>23 A. Sort of.</p> <p>24 Q. Okay. So, in order for a secondary</p> <p>25 consideration to be relevant, it has to be -- have a</p>	<p style="text-align: right;">Page 313</p> <p>1 Q. Okay. And that includes the PFO device and</p> <p>2 the cribriform device; is that right?</p> <p>3 A. Correct.</p> <p>4 Q. You point to the commercial success of the</p> <p>5 cribriform device in Paragraph 1 under "Commercial</p> <p>6 Success."</p> <p>7 Do you see that?</p> <p>8 A. Okay.</p> <p>9 MR. ZAYED: I don't see that.</p> <p>10 Q. (BY MS. WANG) You say: I've been told that</p> <p>11 AGA's Cribriform device embodies at least claim 20 of</p> <p>12 the '738 patent.</p> <p>13 Do you see that?</p> <p>14 A. Yes.</p> <p>15 Q. And then down below, you say: I know and I</p> <p>16 can see from the marketing of both AGA and Gore</p> <p>17 material -- Gore, that flexibility, flat disks, and</p> <p>18 compliance with heart anatomy are touted advantages</p> <p>19 that have led to the commercial success of these</p> <p>20 products.</p> <p>21 Do you see that?</p> <p>22 A. I see that.</p> <p>23 Q. But you don't have an opinion that the AGA</p> <p>24 devices have been successful because of any added</p> <p>25 shape; is that correct?</p>

79 (Pages 310 to 313)

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3/6/2013

Page 314	Page 316
<p>1 A. No.</p> <p>2 MR. ZAYED: Object to form.</p> <p>3 Q. (BY MS. WANG) And you don't have an opinion</p> <p>4 that any of the AGA devices have been successful</p> <p>5 because of resiliency of the central portion pulling</p> <p>6 two enlarged disk portions together?</p> <p>7 A. No.</p> <p>8 MR. ZAYED: Object to form.</p> <p>9 Q. (BY MS. WANG) And you don't have the</p> <p>10 opinion that the AGA devices have been successful</p> <p>11 because they stretch to accommodate the septum while</p> <p>12 the two enlarged portions remain in a preset</p> <p>13 configuration?</p> <p>14 MR. ZAYED: Object to form.</p> <p>15 A. The two enlarged portions stretch.</p> <p>16 Q. (BY MS. WANG) Right.</p> <p>17 A. But not the central portion.</p> <p>18 Q. So, just to be clear, you're not sitting here</p> <p>19 today saying that the commercial success of the AGA</p> <p>20 devices are based on the ability for the central</p> <p>21 portion to stretch to accommodate the thickness of</p> <p>22 the atrial septum while leaving those two enlarged</p> <p>23 portions in a preset configuration?</p> <p>24 A. Correct.</p> <p>25 MR. ZAYED: Object to form.</p>	<p>1 A. Right.</p> <p>2 Q. But it wouldn't be relevant to your analysis</p> <p>3 of commercial success if the flexibility of the Gore</p> <p>4 device is in those enlarged diameter portions,</p> <p>5 right?</p> <p>6 MR. ZAYED: Object to form.</p> <p>7 A. I think just the flexibility and the flat</p> <p>8 configuration, the way other patents go, I would say</p> <p>9 just the advertising of those features, regardless of</p> <p>10 what caused it, would be pertinent.</p> <p>11 Q. (BY MS. WANG) Okay. So you're not focused</p> <p>12 on what causes the flexibility?</p> <p>13 A. No.</p> <p>14 Q. When you say -- just -- I'm sorry. Just let</p> <p>15 me finish the question.</p> <p>16 A. Okay.</p> <p>17 Q. You're not focused on what portion of the</p> <p>18 Gore device causes flexibility when you say: The</p> <p>19 materials of both AGA and Gore that flexibility, flat</p> <p>20 disks, and compliance with heart anatomy are touted</p> <p>21 advantages that have led to the commercial success of</p> <p>22 these products?</p> <p>23 A. No.</p> <p>24 Q. And you're not focused on any part of the</p> <p>25 Gore device when you say that the marketing materials</p>
Page 315	Page 317
<p>1 Q. (BY MS. WANG) Now, you say that you've</p> <p>2 been -- you reviewed the expert report of doctor</p> <p>3 Timothy J. Nantell dated January 14th, 2013.</p> <p>4 A. I reviewed a couple of paragraphs of it.</p> <p>5 Q. So, when you say you reviewed it, you mean</p> <p>6 just a couple of paragraphs?</p> <p>7 A. Right.</p> <p>8 Q. And you say that from that review, you</p> <p>9 understand that Gore has sold over 14,000 units of</p> <p>10 the Gore accused product and received, in return,</p> <p>11 almost \$87 million; is that right?</p> <p>12 A. Yes.</p> <p>13 Q. Now -- but you didn't consider whether or not</p> <p>14 the Helex was profitable, did you?</p> <p>15 A. No.</p> <p>16 Q. And you never considered whether or not the</p> <p>17 Helex was commercially successful for reasons other</p> <p>18 than a resiliency of a central portion?</p> <p>19 MR. ZAYED: Object to form.</p> <p>20 A. No.</p> <p>21 Q. (BY MS. WANG) Now, you say below that you</p> <p>22 see from the marketing materials of both Gore that</p> <p>23 the flexibility, the flat disks, and the compliance</p> <p>24 with heart anatomy are touted advantages; is that</p> <p>25 right?</p>	<p>1 of Gore tout flat disks?</p> <p>2 A. No.</p> <p>3 Q. And you're not focused on the central portion</p> <p>4 when you say that the Gore marketing materials tout</p> <p>5 compliance with heart anatomy?</p> <p>6 MR. ZAYED: Object to form.</p> <p>7 A. No.</p> <p>8 MS. WANG: Let's take a break.</p> <p>9 MR. ZAYED: It's 5:24, so --</p> <p>10 MS. WANG: I'll take one minute.</p> <p>11 MR. ZAYED: That's it.</p> <p>12 MS. WANG: Yeah.</p> <p>13 THE VIDEOGRAPHER: The time 5:23 and</p> <p>14 we're off the record.</p> <p>15 (Break.)</p> <p>16 THE VIDEOGRAPHER: The time is 5:32</p> <p>17 and we're on the record.</p> <p>18 Q. (BY MS. WANG) Okay. I'm going to have you</p> <p>19 turn your attention back to Page 117.</p> <p>20 A. All right.</p> <p>21 Q. Okay. And under the Section D that talks</p> <p>22 about "Praise By Others," you state: With respect to</p> <p>23 the subject matter of the '738 patent, Dr. Amplatz</p> <p>24 has recognized and praised by his contributions to</p> <p>25 the arts.</p>

80 (Pages 314 to 317)

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CHARLES E. MULLINS, M.D.
3/6/2013

<p style="text-align: right;">Page 318</p> <p>1 A. Correct.</p> <p>2 Q. Do you have any citations to that or is that</p> <p>3 just your general knowledge of the field?</p> <p>4 A. He got the PICS award given out annually for</p> <p>5 the most outstanding contributions to the field of</p> <p>6 pediatric intervention, I think, about four or five</p> <p>7 years ago. A bit unusual for a vascular radiologist</p> <p>8 to get the pediatric intervention award.</p> <p>9 Q. Okay.</p> <p>10 A. That is one example.</p> <p>11 Q. You don't know of any award that Dr. Amplatz</p> <p>12 has gotten specifically for claims 23 and 30 of the</p> <p>13 '738 patent?</p> <p>14 A. No, not yet.</p> <p>15 Q. Okay. Looking down at the next section down,</p> <p>16 "Copying," you say that you're: Aware of the</p> <p>17 international competitors of AGA that have copied the</p> <p>18 AGA's technology including the subject matter of</p> <p>19 the -- claimed in the '738 patent, e.g., Occlutech,</p> <p>20 Starway Medical, Lifetech Scientific, and Shanghai</p> <p>21 Metal Alloy Company, Limited?</p> <p>22 A. Correct.</p> <p>23 Q. Did you have an opportunity to see all the</p> <p>24 those devices?</p> <p>25 A. No.</p>	<p style="text-align: right;">Page 320</p> <p>1 Q. Oh, you were --</p> <p>2 A. Oh, well, yeah, that's -- that's the India</p> <p>3 case.</p> <p>4 Q. Right.</p> <p>5 A. Yes.</p> <p>6 Q. So you have had occasion to look at the</p> <p>7 Lifetech Scientific device that you believe they've</p> <p>8 copied from AGA; is that right?</p> <p>9 MR. ZAYED: Object to form.</p> <p>10 A. Teleformically [sic] they've copied, yes.</p> <p>11 Q. (BY MS. WANG) Okay. And what is the</p> <p>12 central portion of Lifetech Scientific's device look</p> <p>13 like?</p> <p>14 A. Exactly like the AGA ASD occluder for the ASD</p> <p>15 device and exactly like the PFO occluder for the PFO</p> <p>16 device.</p> <p>17 Q. Okay. And then, what about Shanghai Shape</p> <p>18 Memory Alloy Company? Have you seen you seen the</p> <p>19 accused device?</p> <p>20 A. I've not seen those.</p> <p>21 MS. WANG: Okay. I don't have any</p> <p>22 further questions.</p> <p>23 Thank you, Dr. Mullins.</p> <p>24 MR. ZAYED: What is the time?</p> <p>25 THE VIDEOGRAPHER: Five minutes.</p>
<p style="text-align: right;">Page 319</p> <p>1 Q. Okay. So, you -- have you seen the Occlutech</p> <p>2 device?</p> <p>3 A. Yes.</p> <p>4 Q. And what is the central portion of the</p> <p>5 Occlutech device look like?</p> <p>6 MR. ZAYED: Object to form.</p> <p>7 A. The basic device is -- similar to the ASO</p> <p>8 device, but the PFO device is similar to the PFO</p> <p>9 device of AGA.</p> <p>10 Q. And is the Occlutech device -- any of the</p> <p>11 Occlutech devices that you're referring to in the</p> <p>12 Copying section from a helical wind, a bend, or a</p> <p>13 coil?</p> <p>14 A. Not yet, no.</p> <p>15 Q. Okay. And then, have you seen the device of</p> <p>16 the Starway Medical technology?</p> <p>17 A. I've seen the Lifetech Science one. I'm not</p> <p>18 sure I've seen the Starway.</p> <p>19 Q. Okay.</p> <p>20 A. They come as the "cocoon" and some funny</p> <p>21 names, and I didn't pay much attention to -- but the</p> <p>22 Lifetech, I have definitely seen.</p> <p>23 Q. And you were an expert on the Lifetech case;</p> <p>24 is that right?</p> <p>25 A. No.</p>	<p style="text-align: right;">Page 321</p> <p>1 MR. ZAYED: I have no questions.</p> <p>2 Reserve signature.</p> <p>3 Thank you.</p> <p>4 THE VIDEOGRAPHER: Time is 5:36 and</p> <p>5 we're off the record.</p> <p>6 (The deposition concluded at 5:38</p> <p>7 p.m.)</p> <p>8</p> <p>9 -- SIGNATURE REQUIRED --</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>

81 (Pages 318 to 321)

CHARLES E. MULLINS, M.D.
3/6/2013

Page 322		Page 324	
1	CHANGES AND SIGNATURE	1	STATE OF TEXAS)
2		2	COUNTY OF HARRIS)
3	PAGE LINE CHANGE REASON	3	I, Amy Prigmore, Texas CSR No. 3929, do hereby
4		4	certify:
5		5	That the foregoing deposition of CHARLES E.
6		6	MULLINS, M.D. was taken before me at the time and
7		7	place herein set forth, at which time the witness was
8		8	put under oath by me;
9		9	That the testimony of the witness and all
10		10	objections made at the time of the examination were
11		11	recorded stenographically by me, were thereafter
12		12	transcribed under my direction and supervision and
13		13	that the foregoing is a true record of same.
14		14	I further certify that I am neither counsel
15		15	for nor related to any party to said action, nor in
16		16	any way interested in the outcome thereof.
17		17	In witness whereof, I have subscribed my name
18		18	this, the ____ day of _____, 2013.
19		19	
20		20	AMY PRIGMORE, Texas CSR 3929
21		21	Expiration Date: 12/31/14
22		22	MERRILL CORPORATION
23		23	315 Capitol Street, Suite 210
24		24	Houston, Texas 77093
25		25	Firm No. 210
Page 323			
1	I, CHARLES E. MULLINS, M.D.,		
2	have read the foregoing deposition and hereby affix		
3	my signature that same is true and correct, except as		
4	noted above.		
5			
6	CHARLES E. MULLINS, M.D.		
7			
8	THE STATE OF TEXAS)		
9	COUNTY OF _____)		
10	Before me _____, on this day		
11	personally appeared CHARLES E. MULLINS, M.D., known		
12	to me (or proved to me under oath or through		
13	_____ (description of identity card		
14	or other document) to be the person whose name is		
15	subscribed to the foregoing instrument and		
16	acknowledged to me that he executed the same for the		
17	purposes and consideration therein expressed.		
18	Given under my hand and seal of office this ____ day		
19	of _____, _____.		
20			
21			
22			
23	Notary Public in and for		
24	The State of Texas		
25			

82 (Pages 322 to 324)

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